BRITISH COLUMBIA

ADULT DENTAL HEALTH SURVEY

1986

COLLEGE OF DENTAL SURGEONS OF BRITISH COLUMBIA

UNIVERSITY OF BRITISH COLUMBIA
Department of Preventive
and Community Dentistry

MINISTRY OF HEALTH
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Appreciation is extended to all patients, dentists and their office staff who participated in this survey as well as to those special dentists who pretested the survey form.

FOREWORD

This study of adult dental health in British Columbia was carried out through a joint effort of members of the College of Dental Surgeons of British Columbia, the Faculty of Dentistry at the University of British Columbia, and the Dental Health Branch, Ministry of Health, Province of British Columbia.

While some extra effort was obviously involved for all three organizations, the costs of conducting the survey remained within the pre-existing budgets of the participating bodies. This is a remarkable achievement for a study of this size and complexity and demonstrates how much can be achieved through co-operative effort.

This study used a novel method of sampling the provincial population through the dental offices of the province. The proposal to do this came as a result of the City of Baltimore's replication of the WHO/USPHS International Collaborative Study on the dental health of adults.[1] Baltimore's report implied that almost everyone visits a dentist sometime; and that the majority of people will have seen a dentist during the last twelve months.[2] The remainder will have seen a dentist at a longer interval which can be estimated. Consequently, in British Columbia, Dental Survey Day was declared December 2, 1986 and each practising dentist in the province was asked to complete a survey form on each patient 16 years of age or over who attended that day. These patients became the survey sample.

This sampling method avoided the huge costs associated with household surveys and created a sample population of adults of all ages and from all regions of the province. It virtually eliminated the problem of patient non-responses, and although biased to represent those people who use dental services, in the opinion of the survey committee, contains no more bias than that found in other surveys of adult dental health.

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INTRODUCTION

During the mid 1980's the College of Dental Surgeons of British Columbia, the Faculty of Dentistry at the University of British Columbia and the government's Dental Health Branch recognized that sweeping changes were occurring in the field of dentistry. It was becoming evident that caries rates were falling in children and that their dental health was generally good. However, concerns about preserving this improvement throughout adult life, and the issues connected to manpower planning, busyness, curriculum changes, dental auxiliaries and their training, and the need for a broad based community health effort in public health, all had one thing in common. There was a lack of hard data about the dental health of adults, from which to make sound decisions.

The concept of an adult dental survey was presented to and accepted by the Council of the College of Dental Surgeons early in 1986. Subsequently, an Adult Oral Health Survey Committee was established by the College with members from the three participating bodies.

The committee conducted a literature review of previous adult dental surveys.[3,4,5,6,7] Some of them were based on 32 teeth, some on 28 teeth, and some did not reveal this number. The committee decided to include the category of "sound" teeth, which are teeth neither filled or decayed, as well as the usual counts of decayed, missing and filled teeth. Eliminated from the count of missing teeth were all those teeth extracted for orthodontic reasons, and all third molars which were missing and might not have ever erupted or been present. Thus all age groups in the study show the average total number of teeth per person as being somewhere between 28 and 32, which is true to actual conditions.

A survey form with recording instructions was designed and was pretested in the Abbotsford, Chilliwack area, on June 26, 1986. The pretest was completed without major problems. The data from the pretest was used to develop computer programs for entering and analyzing the data. The pretest data was judged to present a logical picture and subsequently, December 2, 1986 was named "Survey Day" for all College members. Advance publicity was provided to all members by the College at spaced intervals to encourage participation.

A support system consisting of encouragement from the College and the use of public health units as information centres was developed to resolve problems encountered by local dentists.

A total of 11,510 anonymous forms were returned by local dentists to the survey committee, of which 593 were incomplete and could not be used. The majority of the incomplete forms did not identify the age, sex or residence of the subject. A total return of 10,917 satisfactory forms was received.

The committee believes that the people surveyed form a representative sample of the population. The totally edentulous may be underrepresented because not all of this group attend dentists regularly for care.

This first report is an "overview" of the dental health of adults in the Province of British Columbia. Subsequent reports will provide detailed analyses of the differences exhibited between those with dental plan coverage and those without; between those who are frequent dental office attenders and those who are not; and between those who are recall patients and those who are not. Estimates for differences between the sexes; between the different regions of the province; and between rural, town and city residents will also be made.

CHAPTER 1. DEMOGRAPHICS

Dentist Response

Survey forms with detailed instructions were forwarded to 1,710 licensed dentists in twelve geographic regions (Figure A) of the province. Completed forms were returned from 1,060 dentists, resulting in an overall response rate of 61.99%. Regional response rates ranged from a high of 78.13% to a low of 55.40%. (Table I)

TABLE I

DISTRIBUTION OF DENTIST PARTICIPATION IN PROVINCIAL ADULT DENTAL SURVEY BY REGION

BRITISH COLUMBIA 1986

REGION	DENTISTS PER REGION	DENTIST PARTICIPATION	% OF DENTIST PARTICIPATION	NUMBER OF SUBJECTS EXAMINED
KOOTENAYS	69	42	60.87%	470
OKANAGAN	160	114	71.25%	1348
FRASER VALLEY	246	138	56.10%	1479
BOUNDARY	184	105	57.07%	1128
VANCOUVER ISLAND	124	83	66.94%	955
NORTHERN	88	63	71.59%	722
SKEENA	32	25	78.13%	286
CRD/VICTORIA	168	115	68.45%	1262
VANCOUVER	500	277	55.40%	1626
RICHMOND	70	53	75.71%	470
BURNABY	69	45	65.22%	500
NORTH SHORE	(Included with Vancouver Dentists)			671
TOTAL	1710	1060	61.99%	10917

FIGURE A
ADULT DENTAL SURVEY REGIONS
BRITISH COLUMBIA 1986

TABLE II

DISTRIBUTION OF ESTIMATED PROVINCIAL POPULATION BY AGE GROUP AND GENDER

BRITISH COLUMBIA 1986

AGE	NO. MALES	% MALES	NO. FEMALES	% FEMALES	TOTAL NUMBER	% TOT POP	% ADULT POP
0-15	328646	11.35%	307083	10.61%	635729	21.96%	0.00%
16-25	228105	7.88%	220773	7.63%	448878	15.50%	19.87%
26-35	243528	8.41%	246940	8.53%	490468	16.94%	21.71%
36-45	208270	7.19%	203035	7.01%	411305	14.21%	18.20%
46-55	146560	5.06%	141622	4.89%	288182	9.95%	12.75%
56-65	135080	4.67%	140095	4.84%	275175	9.50%	12.18%
66-75	97532	3.37%	116745	4.03%	214277	7.40%	9.48%
76-85	44184	1.53%	59786	2.07%	103970	3.59%	4.60%
86+	8724	0.30%	18473	0.64%	27197	0.94%	1.20%
PRV TOTS	1440629	49.76%	1454552	50.24%	2895181	100.00%	
ADULT TOT	1111983	49.21%	1147469	50.79%	2259452	100.00%	100.00%

TABLE III

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND GENDER

BRITISH COLUMBIA 1986

AGE	NO. MALES	% MALES	NO. FEMALES	% FEMALES	TOTAL NUMBER	% ADULT POP
0-15	0	0.00%	0	0.00%	0	0.00%
16-25	780	7.14%	999	9.15%	1779	16.30%
26-35	1088	9.97%	1490	13.65%	2578	23.61%
36-45	1102	10.09%	1324	12.13%	2426	22.22%
46-55	826	7.57%	829	7.59%	1655	15.16%
56-65	660	6.05%	697	6.38%	1357	12.43%
66-75	388	3.55%	430	3.94%	818	7.49%
76-85	118	1.08%	154	1.41%	272	2.49%
86+	14	0.13%	18	0.16%	32	0.29%
PRV TOTS	4976	45.58%	5941	54.42%	10917	100.00%

Age and Gender Distribution

As previously reported a total of 10,917 satisfactorily completed survey forms were returned. The sample population was segregated into eight age groups, each encompassing a 10 year span (16-25, 26-35, etc.) and compared to the total population of British Columbia divided into the same age groups.[8] These populations are shown in Table II and Table III. The youngest (16-25) and older (66-75 and over) age groups were slightly underrepresented, while the middle range age groups were slightly overrepresented.

Overall, males were underrepresented and females were overrepresented in the sample. This is indicated in Table II and Table III, as 45.58% of the sample were males, compared to 49.21% of the estimated adult population, and 54.42% of the sample were females, compared to 50.79% of the estimated adult population.

The Committee was impressed by the similarity between the age groups of the provincial adult population and the sample population (Figure B). This close approximation exists in each region of the province (Figure C).

Table IV indicates that the underrepresentation of males existed in all age groups but was more pronounced in the younger and older ages.

TABLE IV

DISTRIBUTION OF SAMPLE ADULT POPULATION BY GENDER WITHIN EACH AGE GROUP

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
MALES	780	43.84%	1088	42.20%	1102	45.42%	826	49.91%	660	48.64%	388	47.43%	118	43.38%	14	43.75%	4976	45.58%
FEMALES	999	56.16%	1490	57.80%	1324	54.58%	829	50.09%	697	51.36%	430	52.57%	154	56.62%	18	56.25%	5941	54.42%

FIGURE B

POPULATION DISTRIBUTION BY AGE GROUP
IN PROVINCE & SURVEY SAMPLE
BRITISH COLUMBIA 1986

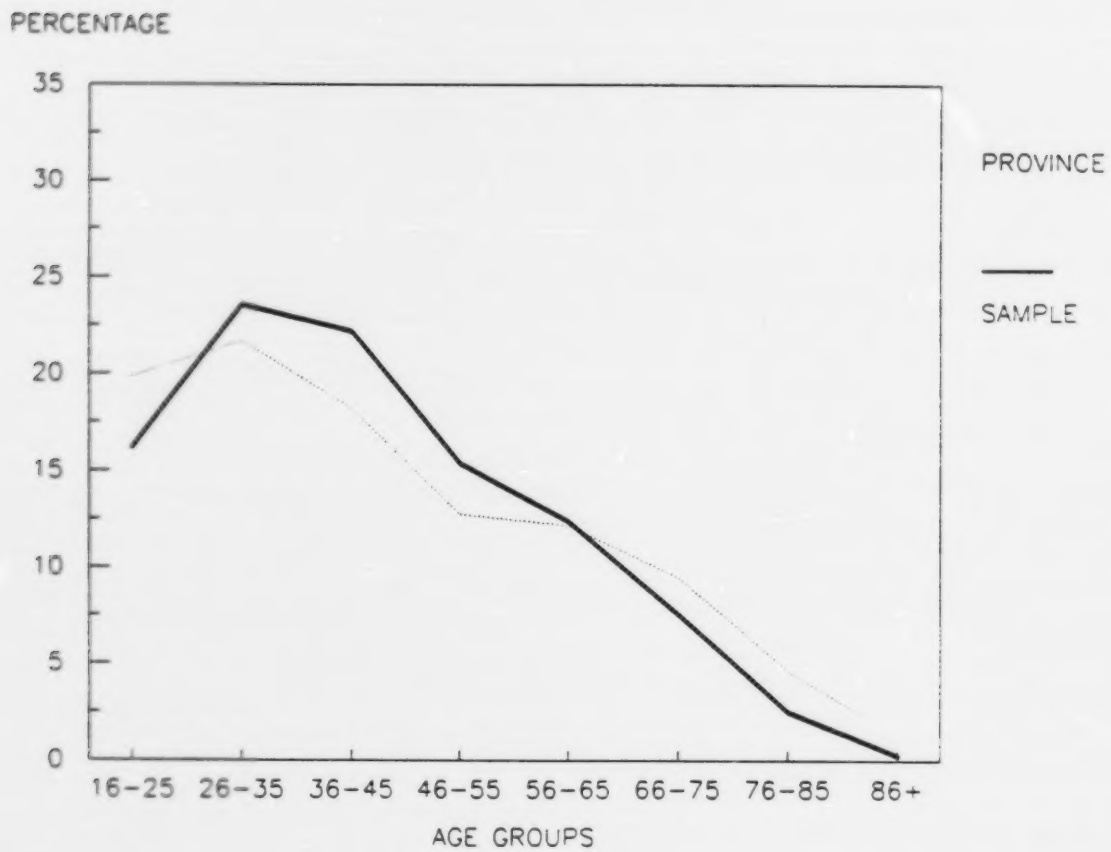


FIGURE C

SAMPLE AND PROVINCIAL POPULATION DISTRIBUTION IN REGIONS BY AGE GROUP
BRITISH COLUMBIA 1986

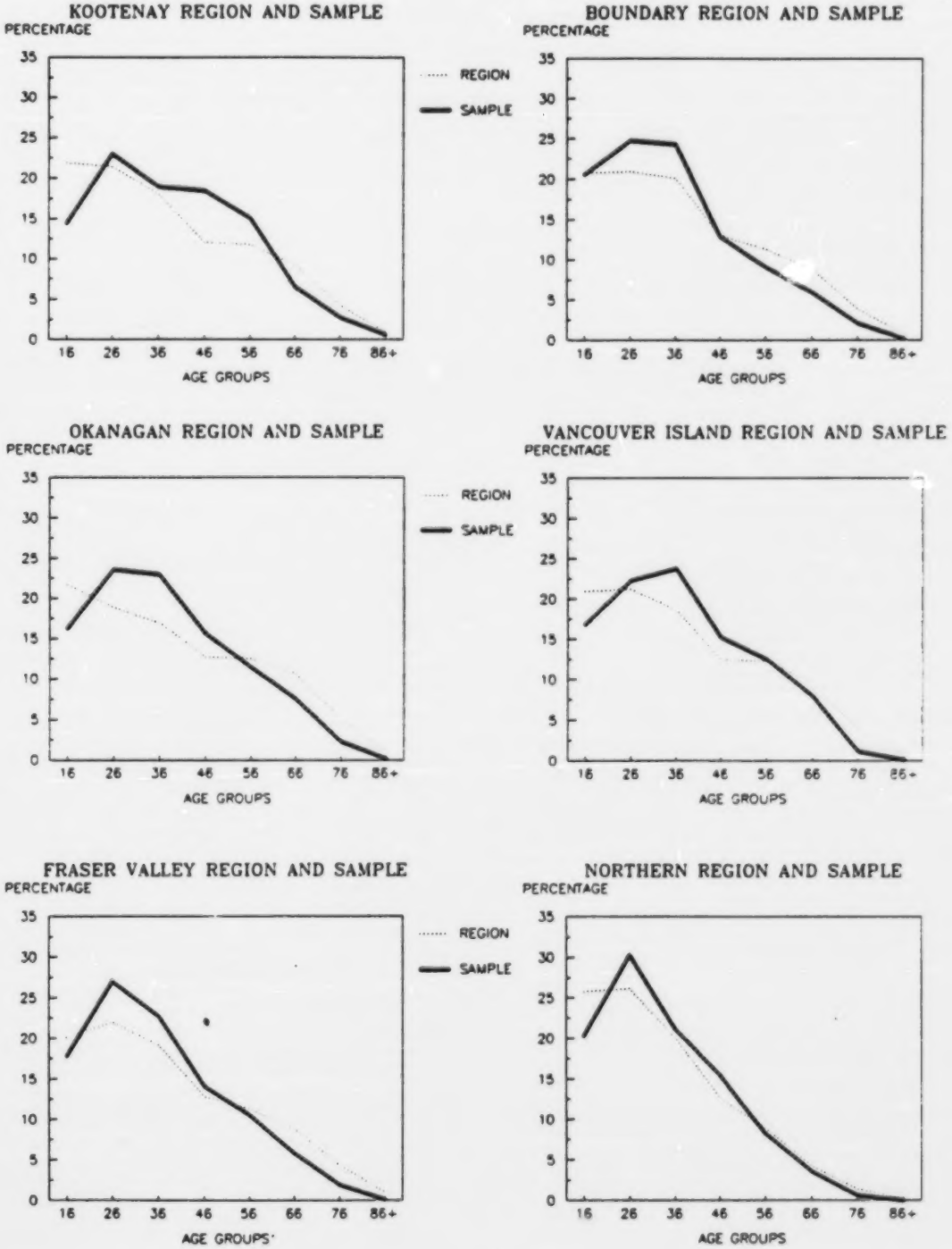
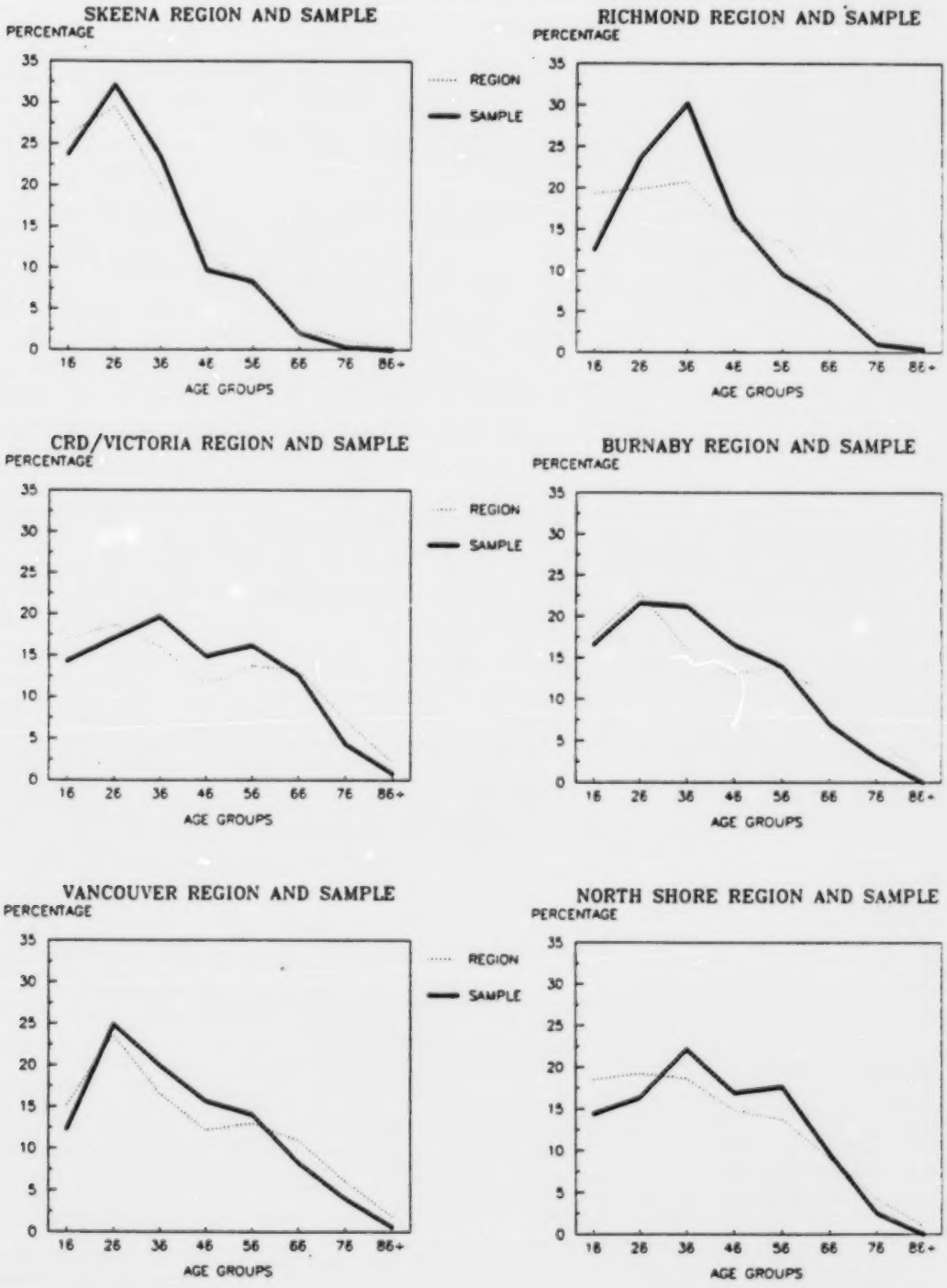


FIGURE C

SAMPLE AND PROVINCIAL POPULATION DISTRIBUTION IN REGIONS BY AGE GROUP
BRITISH COLUMBIA 1986



Residence Distribution

The survey provided data on the residence of the patient by three categories - city, town or rural, as defined by the provincial government.[8] The study indicated that 83.14% of the sample resided in cities, 4.35% in towns, and 12.51% in rural areas. A notable shift occurred in the oldest age groups (76-85, 86+) where an even higher proportion of city residency was indicated. (Table V)

TABLE V

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND RESIDENCE CATEGORY

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
CITY	1463	82.24%	2141	83.05%	2018	83.18%	1409	85.14%	1112	81.95%	664	81.17%	240	88.24%	29	90.63%	9076	83.14%
TOWN	82	4.61%	100	3.88%	96	3.96%	60	3.63%	74	5.45%	52	6.36%	10	3.68%	1	3.13%	475	4.35%
RURAL	234	13.15%	337	13.07%	312	12.86%	186	11.24%	171	12.60%	102	12.47%	22	8.09%	2	6.25%	1366	12.51%

Recall Patients

The data indicated that 75.28% of the patients examined were considered recall patients by the dentist while 24.72% were not. The highest recall rates were in the middle range age groups. A decrease occurred in the oldest age group, wherein only 62.50% were considered recalls. (Table VI)

TABLE VI

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND STATUS AS A RECALL PATIENT

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
YES	1285	72.23%	1906	73.93%	1908	78.65%	1302	78.67%	1008	74.28%	592	72.37%	197	72.43%	20	62.50%	8218	75.28%
NO	494	27.77%	672	26.07%	518	21.35%	353	21.33%	349	25.72%	226	27.63%	75	27.57%	12	37.50%	2699	24.72%

Reason for Present Series of Dental Appointments

The survey form requested dentists to indicate the main reason why the patient came to start this specific series of visits. The primary reason was a "recall appointment" as indicated in 45.74% of the forms. For the older age groups, this figure decreased to 36.40% (76-85) and 15.63% (86+). The other reasons for appointments were reported as prophylaxis (6.22%), pain (12.28%), injury (1.25%), prosthetics (12.42%) and other (22.08%). A review of the comments on the survey forms indicated that the majority of reasons for visits classified as "other" was for restorative care. (Table VII)

TABLE VII

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND REASON FOR PRESENT SERIES OF DENTAL APPOINTMENTS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
RECALL APPOINTMENT	848	47.67%	1269	49.22%	1155	47.61%	743	44.89%	566	41.71%	308	37.65%	99	36.40%	5	15.63%	4993	45.74%
PROPHYLAXIS	127	7.14%	190	7.37%	146	6.02%	88	5.32%	62	4.57%	44	5.38%	16	5.88%	6	18.75%	679	6.22%
PAIN	238	13.38%	318	12.34%	293	12.08%	199	12.02%	154	11.35%	98	11.98%	37	13.60%	4	12.50%	1341	12.28%
INJURY	29	1.63%	27	1.05%	22	0.91%	22	1.33%	21	1.55%	12	1.47%	3	1.10%	1	3.13%	137	1.25%
PROSTHETICS	48	2.70%	172	6.67%	302	12.45%	290	17.52%	275	20.27%	187	22.86%	71	26.10%	11	34.38%	1356	12.42%
OTHER	489	27.49%	602	23.35%	508	20.94%	313	18.91%	279	20.56%	169	20.66%	46	16.91%	5	15.63%	2411	22.08%

Dentist View of Patient Needs

In Table VIII the dental needs of the sample population as viewed by the examining dentists, are reported. The data is classified into those viewed as having only one dental need, and into those viewed as having multiple dental needs. These two classifications are then combined into an overall view of needs.

TABLE VIII

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND DENTIST VIEW OF PATIENT NEEDS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
SAMPLE WITH ONE NEED	1214	68.24%	1643	63.73%	1567	64.59%	1038	62.72%	892	65.73%	567	69.32%	191	70.22%	24	75.00%	7136	65.37%
PREVENTION/PROPHY	561	46.21%	743	45.22%	621	39.63%	391	37.67%	305	34.19%	169	29.81%	56	29.32%	8	33.33%	2854	39.99%
ENDODONTICS	39	3.21%	72	4.38%	87	5.55%	58	5.59%	43	4.82%	23	4.06%	7	3.66%	0	0.00%	329	4.61%
PROSTHODONTICS	36	2.97%	100	6.09%	199	12.70%	163	15.70%	215	24.10%	143	25.22%	65	34.03%	10	41.67%	931	13.05%
RESTORATIVE	307	25.29%	509	30.98%	453	28.91%	270	26.01%	217	24.33%	159	28.04%	44	23.04%	2	8.33%	1961	27.48%
ORTHODONTICS	127	10.46%	53	3.23%	23	1.47%	3	0.29%	1	0.11%	0	0.00%	0	0.00%	0	0.00%	207	2.90%
PERIODONTICS	10	0.82%	48	2.92%	72	4.59%	66	6.36%	43	4.82%	14	2.47%	3	1.57%	1	4.17%	257	3.60%
SURGERY	58	4.78%	36	2.19%	21	1.34%	24	2.31%	14	1.57%	20	3.53%	4	2.09%	1	4.17%	178	2.49%
OTHER	76	6.26%	82	4.99%	91	5.81%	63	6.07%	54	6.05%	39	6.88%	12	6.28%	2	8.33%	419	5.87%
SAMPLE WITH MULTIPLE NEEDS	565	31.76%	935	36.27%	859	35.41%	617	37.28%	465	34.27%	251	18.50%	81	29.78%	8	25.00%	3781	34.63%
PREVENTION/PROPHY	460	81.42%	723	77.33%	639	74.39%	454	73.58%	328	70.54%	183	39.35%	54	66.67%	4	50.00%	2845	75.24%
ENDODONTICS	83	14.69%	153	16.36%	120	13.97%	68	11.02%	56	12.04%	29	6.24%	8	9.88%	2	25.00%	519	13.73%
PROSTHODONTICS	67	11.86%	319	34.12%	350	40.75%	296	47.97%	244	52.47%	119	25.59%	32	39.51%	5	62.50%	1432	37.87%
RESTORATIVE	426	75.40%	705	75,40%	595	69.27%	383	62.07%	293	63.01%	176	37.85%	53	65.43%	6	75.00%	2637	69.74%
ORTHODONTICS	101	17.88%	119	12.73%	51	5.94%	23	3.73%	11	2.37%	2	0.43%	2	2.47%	1	12.50%	310	8.20%
PERIODONTICS	78	13.81%	253	27.06%	303	35.27%	274	44.41%	211	45.38%	93	20.00%	30	37.04%	3	37.50%	1245	32.93%
SURGERY	151	26.73%	121	12.94%	83	9.66%	67	10.86%	54	11.61%	36	7.74%	18	22.22%	1	12.50%	531	14.04%
OTHER	32	5.66%	32	3.42%	35	4.07%	17	2.76%	18	3.87%	7	1.51%	2	2.47%	0	0.00%	143	3.78%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
PREVENTION/PROPHY	1021	57.39%	1466	56.87%	1260	51.94%	845	51.06%	633	46.65%	352	43.03%	110	40.44%	12	37.50%	5699	52.20%
ENDODONTICS	122	6.86%	225	8.73%	207	8.53%	126	7.61%	99	7.30%	52	6.36%	15	5.51%	2	6.25%	848	7.77%
PROSTHODONTICS	103	5.79%	419	16.25%	549	22.63%	459	27.73%	459	33.82%	262	32.03%	97	35.66%	15	46.88%	2363	21.65%
RESTORATIVE	733	41.20%	1214	47.09%	1048	43.20%	653	39.46%	510	37.58%	335	40.95%	97	35.66%	8	25.00%	4598	42.12%
ORTHODONTICS	228	12.82%	172	6.67%	74	3.05%	26	1.57%	12	0.88%	2	0.24%	2	0.74%	1	3.13%	517	4.74%
PERIODONTICS	88	4.95%	301	11.68%	375	15.46%	340	20.54%	254	18.72%	107	13.08%	33	12.13%	4	12.50%	1502	13.76%
SURGERY	209	11.75%	157	6.09%	104	4.29%	91	5.50%	68	5.01%	56	6.85%	22	8.09%	2	6.25%	709	6.49%
OTHER	108	6.07%	114	4.42%	126	5.19%	80	4.83%	72	5.31%	46	5.62%	14	5.15%	2	6.25%	562	5.15%

Persons with only one dental need accounted for 65.37%, and those with multiple dental needs formed 34.63% of the sample.

In the single need group, the most common need reported was prevention/prophylaxis at 39.99%, followed by restorative care at 27.48% and prosthodontics at 13.05%.

In the multiple needs group, 75.24% needed prevention/prophylaxis, 69.74% needed restorative care and 37.87% required prosthodontic care. Periodontal needs were reported in 32.93% of this group.

When the groups were combined, prevention/prophylaxis was required by 52.20%, restorative care by 42.12%, prosthodontics by 21.65% and periodontics by 13.76%.

Endodontic need represented a smaller factor that was relatively constant for the younger and middle age groups. The overall need for prosthodontics, on the other hand, increased directly with age. The need for orthodontics was highest in the youngest age group at 12.82% and then declined dramatically.

The overall periodontic need of the 16-25 age group was low at 4.95%, increased to 20.54% in the 46-55 age group, and then declined in the older age groups.

Surgery needs were highest in the youngest age group and then fairly consistent throughout the other ages. The overall need for surgical services for all ages was reported as 6.49%, which was lower than the need for endodontic services.

Length of Time Since Last Series of Dental Appointments

The sample was composed of a large majority of persons (63.48%) who had visited a dentist within the last year. The two youngest age groups reported the lowest proportions (58.85%, 61.13%) of all the age groups in indicating that they had attended a dentist within this time period.

The next most frequent time interval between series of dental appointments evident in the total sample was 1 year (15.43%), followed by 2-5 years (8.20%) and 2 years (7.45%). Together, the last two time intervals were reported by almost 19% of each of the two youngest age groups.

A significant decline occurs for those who have seen the dentist 5-10 years ago (3.56%) and then ten years ago or more (1.89%). In those not seeing a dentist for ten years or more, the frequency increases from 1.18% for the youngest age group, to 18.75% for those over 86 years. (Table IX)

TABLE IX

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND LENGTH OF TIME SINCE LAST SERIES OF DENTAL APPOINTMENTS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
LESS THAN 1 YEAR	1047	58.85%	1576	61.13%	1591	65.58%	1055	63.75%	913	67.28%	542	66.26%	185	68.01%	21	65.63%	6930	63.48%
1 YEAR	303	17.03%	382	14.82%	361	14.88%	279	16.86%	200	14.74%	120	14.67%	38	13.97%	1	3.13%	1684	15.43%
2 YEARS	164	9.22%	214	8.30%	190	7.83%	106	6.40%	80	5.90%	49	5.99%	8	2.94%	2	6.25%	813	7.45%
2 TO 5 YEARS	171	9.61%	256	9.93%	179	7.38%	123	7.43%	89	6.56%	58	7.09%	17	6.25%	2	6.25%	895	8.20%
5 TO 10 YEARS	73	4.10%	110	4.27%	73	3.01%	59	3.56%	37	2.73%	29	3.55%	8	2.94%	0	0.00%	389	3.56%
10 YEARS +	21	1.18%	40	1.55%	32	1.32%	33	1.99%	38	2.80%	20	2.44%	16	5.88%	6	18.75%	206	1.89%

Third Party Coverage

Overall, the data indicated third party dental coverage was held by 68.18% of the sample. The majority (61.94%) of individuals had some form of private dental insurance. Table X indicates that such insurance covers 62.51% of the youngest age group, rising to 75.56% for the 36-45 age group and then declines until it falls off dramatically for those older than 65 years.

Social Services provided coverage for 4.74% of the sample. These people formed 7.25% of the youngest age group. Their proportion declined in the middle years and then increased in the older age groups. Native people covered by the Department of National Health and Welfare formed 1.50% of the sample. In the youngest age group native people formed 3.37% of the sample and this proportion declined steadily with age.

Of the private insurers, the sample indicated that the largest insurer was MSA with 19.79% of the patients covered, followed by CU&C with 15.40%. All other insurers combined (the CASSI group) accounted for 26.76% of the patients. (Table X)

TABLE X

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND THIRD PARTY COVERAGE OF FEES

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
NO COVERAGE	478	26.87%	540	20.95%	474	19.54%	448	27.07%	608	44.80%	670	81.91%	233	85.66%	22	68.75%	3473	31.81%
MSA	326	18.32%	540	20.95%	609	25.10%	443	26.77%	222	16.36%	19	2.32%	1	0.37%	0	0.00%	2160	19.79%
CU&C	286	16.08%	457	17.73%	471	19.41%	292	17.64%	164	12.09%	10	1.22%	1	0.37%	0	0.00%	1681	15.40%
OTHER INSURERS	500	28.11%	824	31.96%	753	31.04%	424	25.62%	300	22.11%	82	10.02%	29	10.66%	9	28.13%	2921	26.76%
TOTAL INSURED	1112	62.51%	1821	70.64%	1833	75.56%	1159	70.03%	686	50.55%	111	13.57%	31	11.40%	9	28.13%	6762	61.94%
SOCIAL SERVICES	129	7.25%	160	6.21%	92	3.79%	37	2.24%	55	4.05%	36	4.40%	8	2.94%	1	3.13%	518	4.74%
NATIVE PEOPLE	60	3.37%	57	2.21%	27	1.11%	11	0.66%	8	0.59%	1	0.12%	0	0.00%	0	0.00%	164	1.50%

CHAPTER 2. RESTORATIVE CARE

Dental Disease Experience

Lifetime dental caries experience of a school age population is obtained by counting the numbers of decayed, missing and filled teeth.[9] After eliminating those teeth which are missing because of trauma and orthodontic treatment, an average DMFT count for each age group is calculated and is used as a measure of that group's lifetime dental caries experience. In adult groups a DMFT count can be obtained in a similar manner but it cannot be related solely to lifetime dental caries experience since many of the teeth which are now missing have been lost through periodontal disease. Teeth which have been extracted primarily because of periodontal disease may, or may not, have been involved with the dental caries process. Therefore a DMFT count in an adult population does not measure merely dental caries experience but rather, it reflects the consequences of all dental diseases.

Table XI and Figure D show the average number of decayed, missing, filled and sound teeth for the various adult age groups in the province of British Columbia. These data show that on average 10.38 teeth (about 35%) of the 16-25 age group have been affected by dental diseases. This figure rises through each age group until those persons over 86 years of age have had 24.4 teeth (about 76%) attacked by dental disease. Conversely, those adults who are 16-25 years of age have an average of 18.65 sound teeth and this average figure falls to 3.97 teeth in those persons 86 years and older.

FIGURE D

AVERAGE NUMBER DMF TEETH BY AGE GROUP
ADULT DENTAL SURVEY
BRITISH COLUMBIA 1986

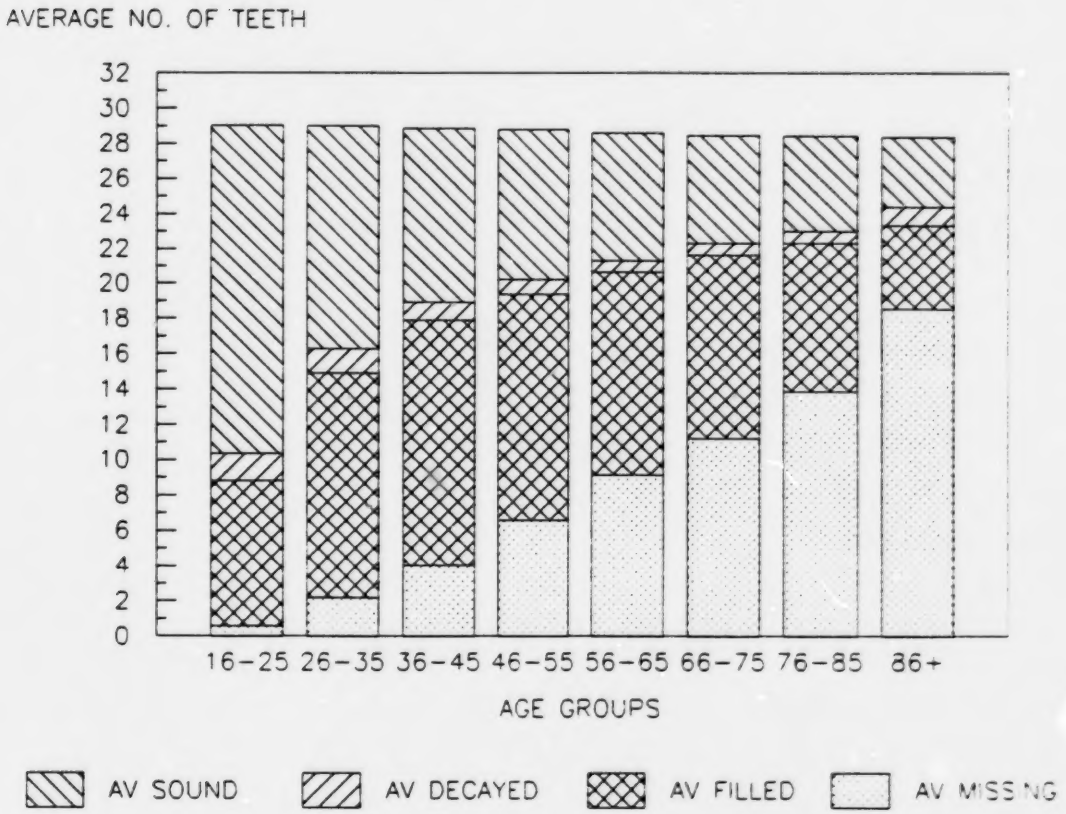


TABLE XI

DISTRIBUTION OF AVERAGE TOOTH MORTALITY AND TOOTH MORBIDITY
IN SAMPLE ADULT POPULATION BY AGE GROUP

BRITISH COLUMBIA 1986

	16-25	26-35	36-45	46-55	56-65	66-75	76-85	86+
AVERAGE DECAYED	1.57	1.39	1.02	0.83	0.67	0.70	0.69	1.06
AVERAGE MISSING	0.58	2.20	4.02	6.60	9.16	11.22	13.89	18.56
AVERAGE FILLED	8.23	12.69	13.87	12.78	11.48	10.41	8.44	4.78
AVERAGE SOUND	18.65	12.70	9.96	8.58	7.29	6.13	5.43	3.97
AVERAGE DMFT	10.38	16.28	18.91	20.21	21.30	22.33	23.03	24.41
AVERAGE NO. OF TEETH PRESENT	28.46	26.77	24.85	22.19	19.44	17.24	14.57	9.81

Tooth Mortality

Table XI shows that tooth mortality in young adults is fairly low. Up to age 25 only an average of 0.58 teeth have been lost through disease. This figure rises fairly sharply in the 26-35 age group where the average person has lost 2.2 teeth and it continues to rise with age until an average individual in the group over the age of 86 years has lost 18.56 teeth. Conversely the average number of teeth present in the 16-25 age group is 28.46 and this falls with age until for those over 86 years, the average number of teeth present is only 9.81.

TABLE XII

DENTAL DISEASE EXPERIENCE OF SAMPLE ADULT POPULATION BY AGE GROUP SHOWING THE PROPORTION OF TEETH THAT ARE DECAYED, MISSING, FILLED AND SOUND

BRITISH COLUMBIA 1986

	16-25	26-35	36-45	46-55	56-65	66-75	76-85	86+
AVERAGE DMFT	10.38	16.28	18.91	20.21	21.30	22.33	23.03	24.41
PERCENT D/DMFT	15.16%	8.52%	5.38%	4.11%	3.13%	3.13%	3.02%	4.35%
PERCENT M/DMFT	5.54%	13.53%	21.27%	32.66%	42.99%	50.25%	60.31%	76.06%
PERCENT F/DMFT	79.30%	77.95%	73.34%	63.23%	53.89%	46.62%	36.67%	19.59%
PERCENT SOUND/ TEETH PRESENT	65.54%	47.43%	40.07%	38.67%	37.51%	35.58%	37.27%	40.45%
PERCENT SOUND/ D + M + F + SOUND	64.24%	43.82%	34.49%	29.80%	25.50%	21.55%	19.08%	13.99%

Treatment Needs

Table XII shows DMFT component ratios and one must be careful in their interpretation especially with age. For the 16-25 age group, where average tooth mortality is only 0.58, one can use, fairly safely, the F/DMFT ratio to indicate the measure of restorative care being received and the D/DMFT ratio to measure unmet restorative needs. The data in the table indicate that 79.30% of treatment needs have been met in this group and 15.16% of treatment needs have not been met. Restorative treatment in the 26-35 age group is also high (77.95%) and treatment needs are low (8.52%) but the M/DMFT ratio now begins to become important as it indicates a growing need for some type of prosthodontic care. This need grows with age and corresponding tooth mortality. The actual need in the adult population cannot be estimated however, until the data from the survey concerning fixed and removeable partial dentures and complete dentures is taken into account.

Table XII also shows the ratios of sound teeth to the number of teeth present and to the potential total number of teeth present (total of D+M+F+Sound teeth). While the ratio of sound teeth to the potential total falls directly with age, it is interesting to see that the ratio of sound teeth to the number of teeth present never falls below 35%. More than a third of all teeth present on average in every age group have never been attacked by dental caries.

Meeting Restorative Treatment Needs

Early analysis of the existing data indicates that restorative treatment needs in adults are being met at a high level.

Table XIII indicates those people in each age group who have no caries defects and consequently require no restorative treatment at the time of examination. In age group 16-25, 60.93% of those examined required no restorative care and this figure rises in each successive age group. Overall, more than two thirds of the people surveyed required no restorative care at the time of examination.

TABLE XIII

DISTRIBUTION OF SAMPLE ADULT POPULATION WHO ARE CARIES FREE AND WHO HAVE NO CARIES DEFECTS OR MISSING TEETH

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
NO CARIES DEFECTS	1084	60.93%	1612	62.53%	1646	67.85%	1180	71.30%	989	72.88%	584	71.39%	195	71.69%	24	75.00%	7314	67.00%
NO TEETH EXTRACTED	1396	78.47%	1255	48.68%	794	32.73%	280	16.92%	95	7.00%	44	5.38%	6	2.21%	0	0.00%	3870	35.45%
CARIES FREE	69	3.88%	9	0.35%	3	0.12%	1	0.06%	2	0.15%	0	0.00%	0	0.00%	0	0.00%	84	0.77%

Table XIII also indicates that 78.47% of the people in 16-25 age group have never lost a tooth through extraction. This figure drops quite dramatically to 48.68% in the next age group (26-35) but taking into account all ages, more than one-third of the survey group have never lost a tooth through extraction.

Table XIII shows that from a dental caries stand-point, only 3.88% of the people in the 16-25 age group are caries free and this figure drops to 0.35% in the 26-35 age group. These figures show that dental caries is still a universal disease.

CHAPTER 3. PERIODONTICS

The survey committee made the assumption that periodontal disease progresses from poor oral hygiene to bleeding gingivae on probing, to presence of calculus, to formation of moderate pockets and deep pockets, with the final outcome as loss of teeth where the periodontium no longer exists. The condition of healthy or "reversible to health", includes those adults demonstrating healthy gingivae, bleeding on probing and calculus without pockets. Those adults with moderate pockets may be in a questionable reversible/irreversible state, while those with deep pockets represent advanced irreversible disease.

Periodontal disease is said to be chronic and pandemic. Little is known about the actual prevalence and incidence of this disease in British Columbia. This current survey endeavored to gain a better understanding of the epidemiology of this widespread disease.

Measurement Criteria

The Community Periodontal Index of Treatment Needs (CPITN)[10] was used to classify individuals according to their highest treatment need by "worst" condition present, to demonstrate how each sextant is periodontally involved, and to provide an assessment of the prevalence of various types of periodontal disease in the population. Instructions on the use of the CPITN are included in Appendix B.

General Findings

Table XIV provides a summary of the state of the periodontium by "worst" condition and age for the combined male/female adult population. Under GINGIVAE STATUS: BLEEDING, POH, means the presence of poor oral hygiene and bleeding gums on probing.

TABLE XIV

DISTRIBUTION OF SAMPLE ADULT POPULATION AND HEALTH STATUS OF PERIODONTIUM BY AGE GROUP AND WORST CONDITION

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
GINGIVAE STATUS:																		
HEALTHY	510	28.67%	372	14.43%	244	10.06%	108	6.53%	57	4.20%	28	3.42%	6	2.21%	0	0.00%	1325	12.14%
BLEEDING, POH	510	28.67%	484	18.77%	339	13.97%	182	11.00%	99	7.30%	44	5.38%	8	2.94%	0	0.00%	1666	15.26%
CALCULUS NO POCKETS	433	24.34%	648	25.14%	475	19.58%	235	14.20%	160	11.79%	70	8.56%	23	8.46%	1	3.13%	2045	18.73%
TOTAL OF HEALTHY OR "REVERSIBLE TO HEALTH"	1453	81.68%	1504	58.34%	1058	43.61%	525	31.72%	316	23.29%	142	17.36%	37	13.60%	1	3.13%	5036	46.13%
MODERATE POCKETS	250	14.05%	673	26.11%	645	26.59%	341	20.60%	268	19.75%	133	16.26%	33	12.13%	2	6.25%	2345	21.48%
DEEP POCKETS	45	2.53%	193	7.49%	290	11.95%	248	14.98%	159	11.72%	61	7.46%	19	6.99%	3	9.38%	1018	9.32%
ONE OR MORE SEXTANTS EXTRACTED	30	1.69%	198	7.68%	406	16.74%	491	29.67%	525	38.69%	402	49.14%	141	51.84%	17	53.13%	2210	20.24%
ALL TEETH EXTRACTED	1	0.06%	10	0.39%	27	1.11%	50	3.02%	89	6.56%	80	9.78%	42	15.44%	9	28.13%	308	2.82%

Only 12.14% of adults of all ages showed no deterioration of the gingival tissue. These individuals together with those demonstrating bleeding gingivae on probing and calculus with no pockets as their "worst" finding, represent the 46.13% of adults with periodontium that are healthy or "reversible to health."

The next "worst" finding, that of moderate pockets, was demonstrated in 21.48% of adults. The progression to deep pockets was noted in 9.32% and this condition may be considered irreversible.

The loss of all teeth in one or more sextants as their "worst" finding, was demonstrated by 20.24% of adults, with another 2.82% having all teeth in all sextants extracted. Looking at the data on carious teeth by age and the progression of periodontal disease by age, it would appear that most tooth extraction in adults is due to periodontal disease as opposed to caries. The severity of periodontal disease rises markedly with age. For instance, while 81.68% of 16-25 year olds are classified as healthy or "reversible to health", only 23.29% of the 56-65 year olds are in this category. Figure E graphically demonstrates the "worst" findings in each of the age groups.

FIGURE E

DISTRIBUTION OF SAMPLE ADULT POPULATION AND HEALTH STATUS OF PERIODONTIUM BY AGE GROUP AND WORST CONDITION BRITISH COLUMBIA 1986

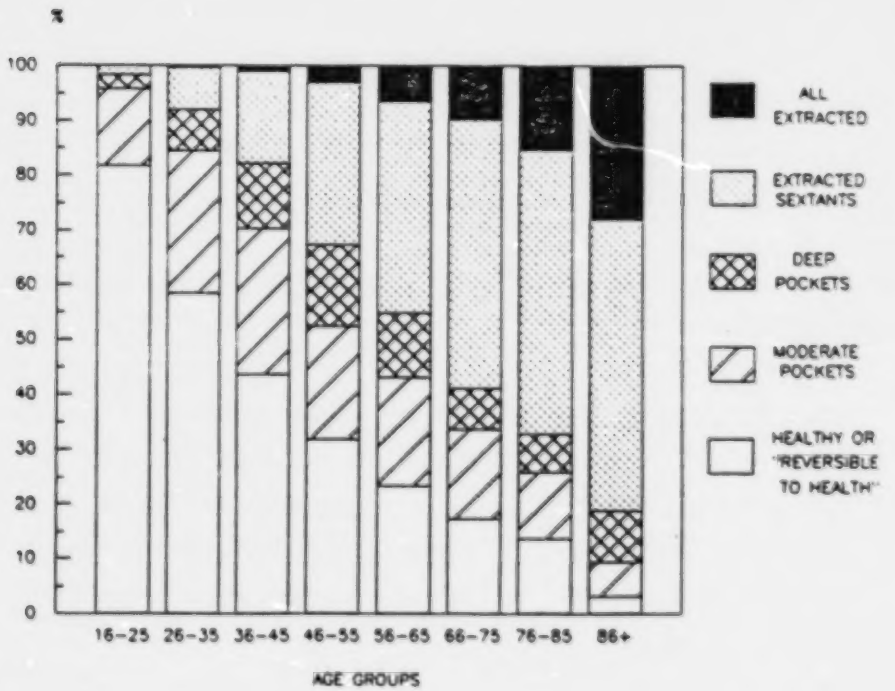


Table XV separates out from the total sample population, those whose gingivae were found to be healthy or classified as "reversible to health". The presence of bleeding gingivae on probing appears fairly constant except for age 76 upward. The presence of calculus without pockets, as a "worst" finding increases with age. It appears very evident that even in those whose periodontium was judged to be healthy or "reversible to health" there is a large need for professional dental intervention to prevent the development of more serious conditions. There is also a major role for each patient to play in protecting his own periodontal health.

TABLE XV

DISTRIBUTION OF SAMPLE ADULT POPULATION WHOSE GINGIVAE IS HEALTHY OR "REVERSIBLE TO HEALTH" BY WORST FINDING

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL OF HEALTHY OR "REVERSIBLE TO HEALTH"	1453	100.0%	1504	100.0%	1058	100.0%	525	100.0%	316	100.0%	142	100.0%	37	100.0%	1	100.0%	5036	100.0%
HEALTHY	510	35.10%	372	24.73%	244	23.06%	108	20.57%	57	18.04%	28	19.72%	6	16.22%	0	0.00%	1325	26.31%
BLEEDING, POH	510	35.10%	484	32.18%	339	32.04%	182	34.67%	99	31.33%	44	30.99%	8	21.62%	0	0.00%	1666	33.08%
CALCULUS, NO POCKETS	433	29.80%	648	43.09%	475	44.90%	235	44.76%	160	50.63%	70	49.30%	23	62.16%	1	100.0%	2045	40.61%

Findings by Sextant

Figure F graphically demonstrates the health status of the periodontium by sextant for each of the age groups. Note that "healthy" includes those with healthy gingivae, bleeding gingivae on probing and calculus with no pockets. Actual detailed data for each of the conditions classified are found in Appendix E.

For the 16-25 year olds, the anterior sextants seem to be the healthiest. Deep pockets and loss of all teeth in a sextant are not seen as common findings in this age group.

FIGURE F

HEALTH STATUS OF PERIODONTIUM BY AGE, SEXTANT & WORST CONDITION BRITISH COLUMBIA 1986

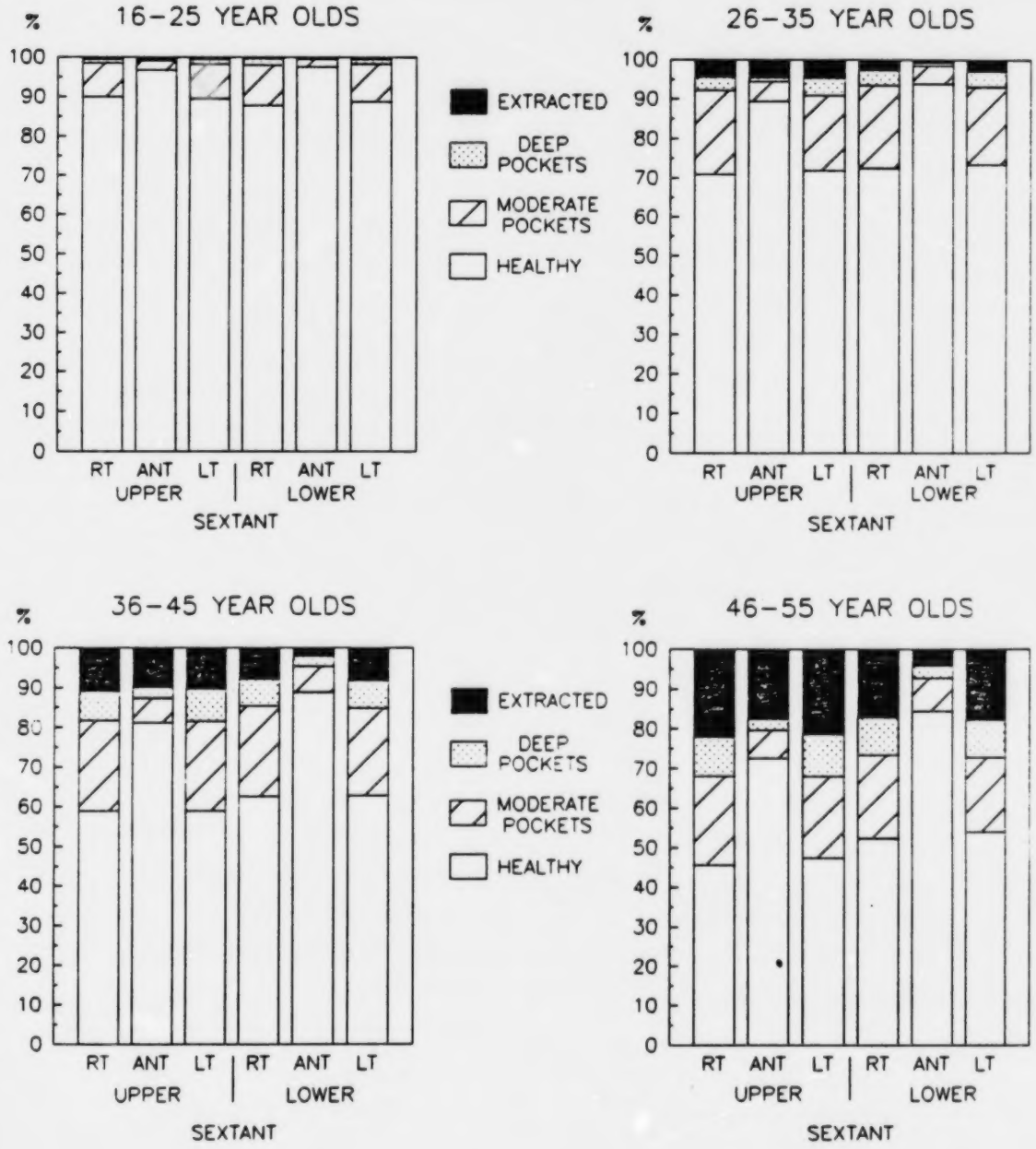
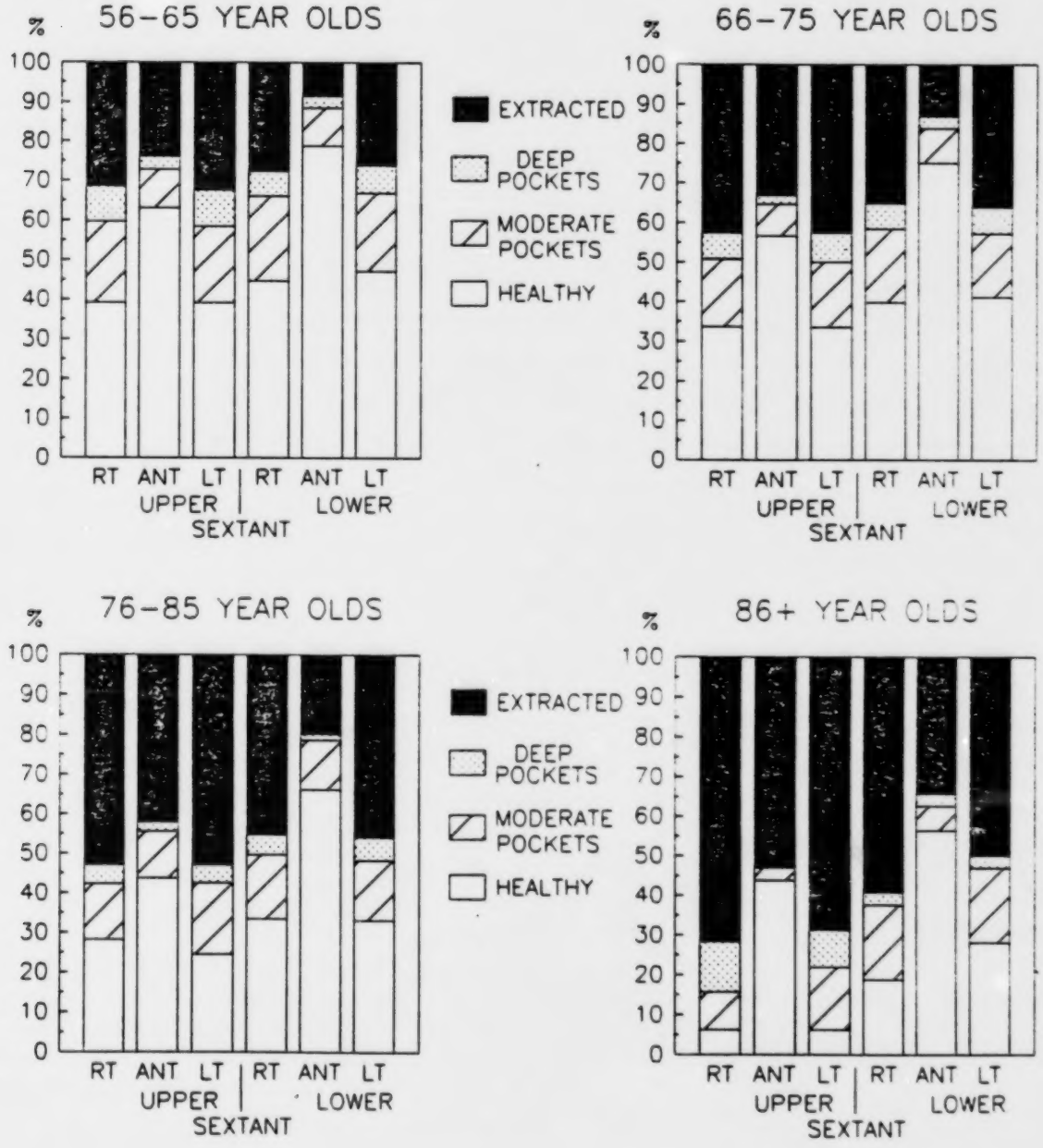


FIGURE F

HEALTH STATUS OF PERIODONTIUM BY AGE, SEXTANT & WORST CONDITION BRITISH COLUMBIA 1986



While the anterior sextants are still the healthiest in the 26-35 group, all sextants show lower percentages of healthy tissues. Moderate pockets now begin to make their appearance in all posterior sextants. Deep pockets and loss of all teeth in a sextant are just beginning to show up as "worst" findings in this age group.

At 36-45, moderate pockets are increasing slightly in all sextants. Deep pockets are now becoming more evident in all sextants. More sextants are showing a loss of all teeth.

With each advancing age group, there is a progression of periodontal disease in each sextant. Of particular note is the consistent increase in the loss of all teeth in every sextant with age. Throughout all the age groups, although calculus appears most frequently in the lower anteriors, this is the sextant that is most resistant to the loss of teeth. (Appendix E) This one apparent anomaly to the initial assumption regarding the progression of periodontal disease may be due to the shape and position of the lower anterior teeth and gums and the natural protection provided by increased salivary flow.

Treatment Needs

Table XVI demonstrates how the CPITN can be used to classify treatment parameters using the "worst" finding in various age groups.[10,11] It is assumed that 100% of all adults can benefit from oral hygiene instruction, and as the seriousness of the periodontal condition increases, the treatment needs are considered to be cumulative from categories A to D.

While all the population can benefit from oral hygiene instruction, a good proportion also require professional scaling and prophylaxis.

TABLE XVI

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND PERIODONTAL TREATMENT NEED

BRITISH COLUMBIA 1986

TREATMENT CATEGORIES	16-25 %	26-35 %	36-45 %	46-55 %	56-65 %	66-75 %	76-85 %	86+ %	ALL AGE GROUPS %
A Improvement in Oral Hygiene through Oral Hygiene Instruction (Scores 0 to 1; Healthy and Bleeding Gingivae)	57.34%	33.20%	24.03%	17.52%	11.50%	8.80%	5.15%	0.00%	27.40%
B Oral Hygiene Instruction and Scaling (Scores 2 and/or 3; Calculus, Moderate Pockets)	38.39%	51.24%	46.17%	34.80%	31.54%	24.82%	20.59%	9.38%	40.21%
C Oral Hygiene Instruction, Scaling and Periodontal Therapy (Score 4; Deep Pockets)	2.53%	7.49%	11.95%	14.98%	11.72%	7.46%	6.99%	9.38%	9.32%
D Oral Hygiene Instruction, Scaling, Periodontal Therapy and Prosthetic Appliances (Loss of all teeth in one or more sextants or loss of all teeth)	1.74%	8.07%	17.85%	32.69%	45.25%	58.92%	67.28%	81.25%	23.06%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Smaller proportions of the population need more advanced periodontal therapy and perhaps treatment with therapeutic agents. The need for prosthetic treatment to replace lost teeth increases dramatically with age.

In this survey, overall, 87.86% of the adult population demonstrated signs of periodontal disease and the need for dental intervention. There is indeed an epidemic of periodontal disease which should be addressed by prevention and treatment in early adulthood. The future aspirations of dentistry may be tied to this widespread and destructive disease.

CHAPTER 4. ORAL PATHOLOGY

Prevalence of Oral Pathology

While studies related to the prevalence of oral pathology exist in the literature, nearly all descriptions of benign oral lesions have come from special populations, identified by dental schools, hospitals, and pathology laboratories. The real prevalence and incidence of oral soft tissue pathology in British Columbian adults, is heretofore unknown.

In this report, the committee has attempted to identify the prevalence of soft tissue oral pathology that would be noticed in the typical practice of a dentist in British Columbia. After recording the periodontal findings, the examining dentist was asked to determine if any other soft tissue pathology was present in each subject or not. If soft tissue pathology was present, the dentist was asked to name the lesion.

TABLE XVII

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND FREQUENCY OF ORAL PATHOLOGY

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
SAMPLE TOTAL	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
NO. OF PEOPLE WITH																		
ONE OCCURRENCE	106	5.96%	196	7.60%	211	8.70%	157	9.49%	142	10.46%	101	12.35%	41	15.07%	5	15.63%	959	8.78%
TWO OCCURRENCES	2	0.11%	6	0.23%	12	0.49%	6	0.36%	6	0.44%	2	0.24%	3	1.10%	0	0.00%	37	0.34%
THREE OCCURRENCES	1	0.06%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
TOTAL WITH PATH	109	6.13%	202	7.84%	223	9.19%	163	9.85%	148	10.91%	103	12.59%	44	16.18%	5	15.63%	997	9.13%

TABLE XVIII

DISTRIBUTION OF ORAL PATHOLOGY IN SAMPLE ADULT POPULATION BY AGE GROUP AND TYPE

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
SAMPLE TOTAL	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
ABSCESS	1	0.06%	5	0.19%	7	0.29%	7	0.42%	2	0.15%	3	0.37%	1	0.37%	0	0.00%	26	0.24%
AMALGAM TATOO	4	0.22%	14	0.54%	29	1.20%	18	1.09%	16	1.18%	5	0.61%	4	1.47%	1	3.13%	91	0.83%
ANGULAR CHEILITIS	3	0.17%	2	0.08%	2	0.08%	0	0.00%	3	0.22%	4	0.49%	2	0.74%	0	0.00%	16	0.15%
ANKYLOGLOSSIA	1	0.06%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
BUCCAL EXOSTOSES	0	0.00%	1	0.04%	5	0.21%	3	0.18%	1	0.07%	4	0.49%	1	0.37%	0	0.00%	15	0.14%
ORAL CANCER/LEUKEMIA	0	0.00%	0	0.00%	0	0.00%	2	0.12%	0	0.00%	2	0.24%	0	0.00%	0	0.00%	4	0.04%
CANDIDIASIS	0	0.00%	1	0.04%	1	0.04%	1	0.06%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	4	0.04%
CHRONIC CHEEK BITES	21	1.18%	23	0.89%	22	0.91%	13	0.79%	10	0.74%	3	0.37%	2	0.74%	0	0.00%	94	0.86%
CHRONIC DRY MOUTH	0	0.00%	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.37%	0	0.00%	2	0.02%
ENLARGED LINGUAL TONSIL	2	0.11%	0	0.00%	0	0.00%	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	3	0.03%
EPIDERMOID CYST	0	0.00%	1	0.04%	0	0.00%	1	0.06%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	2	0.02%
EPULIS FISSURATUM	0	0.00%	0	0.00%	1	0.04%	0	0.00%	1	0.07%	3	0.37%	0	0.00%	0	0.00%	5	0.05%
FIBROID POLYP	0	0.00%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
FISSURED TONGUE	1	0.06%	2	0.08%	5	0.21%	3	0.18%	6	0.44%	3	0.37%	3	1.10%	0	0.00%	23	0.21%
FISTULA	7	0.39%	3	0.12%	2	0.08%	5	0.30%	3	0.22%	0	0.00%	0	0.00%	1	3.13%	21	0.19%
FORDYCES GRANULES	6	0.34%	13	0.50%	25	1.03%	20	1.21%	14	1.03%	4	0.49%	2	0.74%	0	0.00%	84	0.77%
GEOGRAPHIC TONGUE	4	0.22%	6	0.23%	3	0.12%	2	0.12%	6	0.44%	4	0.49%	0	0.00%	0	0.00%	25	0.23%
HAIRY TONGUE	1	0.06%	4	0.16%	3	0.12%	1	0.06%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	10	0.09%
HEMANGIOMA	0	0.00%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	2	0.24%	1	0.37%	0	0.00%	4	0.04%
HERPETIC LESIONS	9	0.51%	12	0.47%	5	0.21%	3	0.18%	7	0.52%	5	0.61%	0	0.00%	0	0.00%	41	0.38%
INFLAMMATION/IRRITATION	15	0.84%	46	1.78%	33	1.36%	23	1.39%	25	1.84%	19	2.32%	9	3.31%	2	6.25%	172	1.58%
INFLAMMATORY ULCER	0	0.00%	3	0.12%	5	0.21%	6	0.36%	0	0.00%	5	0.61%	2	0.74%	1	3.13%	22	0.20%
IRRITATION FIBROMA	0	0.00%	5	0.19%	1	0.04%	2	0.12%	2	0.15%	2	0.24%	0	0.00%	0	0.00%	12	0.11%
LEUKOPLAKIA	5	0.28%	10	0.39%	21	0.87%	12	0.73%	11	0.81%	4	0.49%	3	1.10%	0	0.00%	66	0.60%
LICHEN PLANUS	1	0.06%	2	0.08%	3	0.12%	3	0.18%	3	0.22%	1	0.12%	0	0.00%	0	0.00%	13	0.12%
LUPUS SYNDROME	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
MONILIASIS	0	0.00%	0	0.00%	0	0.00%	1	0.06%	0	0.00%	1	0.12%	0	0.00%	0	0.00%	2	0.02%
MUCOCELE	2	0.11%	0	0.00%	3	0.12%	1	0.06%	2	0.15%	3	0.37%	1	0.37%	0	0.00%	12	0.11%
NICOTINE PALATINUS	2	0.11%	5	0.19%	5	0.21%	5	0.30%	4	0.29%	2	0.24%	0	0.00%	0	0.00%	23	0.21%
PALATAL/MANDIBULAR TORI	17	0.96%	40	1.55%	45	1.85%	36	2.18%	27	1.99%	18	2.20%	9	3.31%	0	0.00%	192	1.76%
PAPILLARY HYPERPLASIA	8	0.45%	10	0.39%	13	0.54%	8	0.48%	7	0.52%	6	0.73%	1	0.37%	0	0.00%	53	0.49%
PAPILLOMA	1	0.06%	3	0.12%	0	0.00%	0	0.00%	2	0.15%	2	0.24%	2	0.74%	0	0.00%	10	0.09%
SCAR TISSUE	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.12%	0	0.00%	0	0.00%	1	0.01%
SMOOTH RED TONGUE	0	0.00%	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
TOBACCO/SNUFF POUCH	1	0.06%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.01%
VARICOSITIES	2	0.11%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	2	0.24%	3	1.10%	0	0.00%	8	0.07%
VERRUCA'S WARTS	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.37%	0	0.00%	1	0.01%
# OF ORAL PATHOLOGIES	114	6.41%	213	8.26%	242	9.98%	176	10.63%	156	11.50%	108	13.20%	48	17.65%	5	15.63%	1062	9.73%

Table XVII indicates that 9.13% of the adult population have oral pathology present. The prevalence of oral pathology in the 16-25 age group is 6.13% and this rises steadily until at age 76-85, the prevalence is 16.18%. The 86+ age sample may be too small to be representative. The great majority have only 1 lesion, but 37 people are reported as having 2 different types of lesions and one person as having 3 different lesions.

Types of Oral Pathology

Table XVIII shows the number and rates of 37 different broadly defined oral pathology lesions exhibited by age of subjects and name of the lesion. These lesions range from life threatening conditions, to those associated with AIDS and other debilitating conditions, to those associated with pain and discomfort, to anatomical benign variations. Overall, the prevalence of soft tissue oral pathology lesions is 9.73% with 9.13% of the population showing the presence of 1 or more lesions.

None of the identified lesions are very common. The most frequently found conditions are Palatal/Mandibular Tori, Inflammation/Irritation and Chronic Cheek Bites. Nevertheless, it is apparent that persons with very serious oral pathology appear in a dental office in British Columbia every day.

The use of multiple examiners, most of whom were not specialists in oral diagnosis, may tend to cause some underreporting of borderline lesions. This reported prevalence rate of 9.13% compares with a rate of 10.3% found by Bouquet in a study of older Americans who presented in Minnesota between 1957 and 1972 for oral cancer screenings.[12]

The advantage to using general practice dentists to perform the examinations is that the results are likely close to that identified in the usual British Columbian dental practice. With a prevalence rate close to 9% of all adults, oral pathology is an important diagnostic concern for dentists and patients, alike.[13]

CHAPTER 5. ORTHODONTICS

Occlusion

An attempt was made to classify the occlusion of all subjects in the survey. This was not possible in all cases because of extensive loss of teeth and/or the presence of prosthetic replacements. In the youngest age group (16-25) less than 1% of occlusions were non-classifiable, but this increased with age so that by 86+ years, more than 65% of occlusions were in this category.

Table XIX indicates Angle's classification for each age group. Of the total adult population 65.54% exhibited a Class I occlusion, 18.28% a Class II occlusion and 4.22% a Class III occlusion. Almost 12% had occlusions judged to be non-classifiable. Overall, these results are quite similar to those reported in other North American studies.[14]

TABLE XIX

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND ANGLE'S CLASSIFICATION

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
ANGLE CLASS 1	1352	76.00%	1808	70.13%	1599	65.91%	1063	64.23%	790	58.22%	413	50.49%	121	44.49%	9	28.13%	7155	65.54%
ANGLE CLASS 2	325	18.27%	543	21.06%	524	21.60%	265	16.01%	213	15.70%	101	12.35%	23	8.46%	2	6.25%	1996	18.28%
ANGLE CLASS 3	92	5.17%	142	5.51%	100	4.12%	54	3.26%	37	2.73%	25	3.06%	11	4.04%	0	0.00%	461	4.22%
NOT CLASSIFIABLE	10	0.56%	85	3.30%	203	8.37%	273	16.50%	317	23.36%	279	34.11%	117	43.01%	21	65.63%	1305	11.95%

Orthodontic Treatment Needs

Table XX indicates the level of treatment needs, and the extent to which they are being met in British Columbia. The most interesting age group is the youngest one of 16-25 years, and it is evident that almost 20% of these individuals have received or are receiving orthodontic care. In the next age group of 26-35 years, only 5.28% have received treatment, so obviously there has been a large increase in the number of people seeking orthodontic care over the last two decades. Very little orthodontic treatment was reported in persons older than 35 years.

Treatment needs classified as "essential" and which are not being met are found in 2-3% of the 16-25 and 26-35 age groups. In addition, treatment needs classified as "desirable" are found in about 20% of both these age groups. Consequently, even though active treatment has increased considerably in recent years, there still remains a pool of young adults who could benefit from orthodontic treatment.

Orthodontic treatment needs of older adults, are obviously considered to be of less importance, probably by both dentists and patients alike.

TABLE XX

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND ORTHODONTIC TREATMENT NEEDS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
TREATMENT:																		
NO NEED	989	55.59%	1783	69.16%	1894	78.07%	1439	86.95%	1242	91.53%	784	95.84%	268	98.53%	30	93.75%	8429	77.21%
DESIREABLE	385	21.64%	604	23.43%	423	17.44%	187	11.30%	110	8.11%	33	4.03%	4	1.47%	2	6.25%	1748	16.01%
ESSENTIAL	52	2.92%	55	2.13%	21	0.87%	12	0.73%	2	0.15%	0	0.00%	0	0.00%	0	0.00%	142	1.30%
COMPLETED OR IN PROGRESS	353	19.84%	136	5.28%	88	3.63%	17	1.03%	3	0.22%	1	0.12%	0	0.00%	0	0.00%	598	5.48%

Occlusal Characteristics

Table XXI lists the main occlusal characteristics found during the survey. It is evident that over 70% of all adults in the sample have acceptable occlusions. On the other hand if we look at the two youngest age groups, about 32% have significant occlusal problems which might have been corrected more easily at an earlier age.

TABLE XXI

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND OCCLUSAL CHARACTERISTICS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
ACCEPTABLE OCCLUSION	1218	68.47%	1733	67.22%	1719	70.86%	1255	75.83%	1057	77.89%	666	81.42%	224	82.35%	26	81.25%	7898	72.35%
5MM+ OVERJET	45	2.53%	63	2.44%	99	4.08%	53	3.20%	44	3.24%	12	1.47%	8	2.94%	1	3.13%	325	2.98%
POSTERIOR CROSSBITE	61	3.43%	112	4.34%	86	3.54%	32	1.93%	31	2.28%	21	2.57%	6	2.21%	1	3.13%	350	3.21%
ANTERIOR CROSSBITE	28	1.57%	28	1.09%	39	1.61%	15	0.91%	11	0.81%	10	1.22%	4	1.47%	0	0.00%	135	1.24%
100% OVERBITE	25	1.41%	55	2.13%	57	2.35%	44	2.66%	37	2.73%	16	1.96%	5	1.84%	0	0.00%	239	2.19%
ANTERIOR OPEN BITE	31	1.74%	41	1.59%	24	0.99%	4	0.24%	4	0.29%	5	0.61%	2	0.74%	0	0.00%	111	1.02%
POOR ALIGNMENT	155	8.71%	199	7.72%	154	6.35%	97	5.86%	67	4.94%	50	6.11%	18	6.62%	4	12.50%	744	6.82%
MORE THAN ONE OF THE ABOVE CHARACTERISTICS	216	12.14%	347	13.46%	248	10.22%	155	9.37%	106	7.81%	38	4.65%	5	1.84%	0	0.00%	1115	10.21%

CHAPTER 6. PROSTHODONTICS

Complete Dentures

The need for full upper and lower dentures is associated with the rate of complete edentulousness. The data in this particular section cannot be considered complete because many totally edentulous persons do not attend the offices of dentists for care.

TABLE XXII

DISTRIBUTUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND NEED FOR FULL DENTURE PROSTHETICS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
UPPER EDENTULOUS	6	0.34%	81	3.14%	186	7.67%	239	14.44%	287	21.15%	227	27.75%	101	37.13%	16	50.00%	1143	10.47%
HAVING AND WEARING UPPER DENTURE	4	0.22%	79	3.06%	178	7.34%	234	14.14%	276	20.34%	218	26.65%	100	36.76%	15	46.88%	1104	10.11%
EDENTULOUS, HAVING AND WEARING UPPER DENTURE	4	66.67%	79	97.53%	178	95.70%	234	97.91%	276	96.17%	218	96.04%	100	99.01%	15	93.75%	1104	96.59%
LOWER EDENTULOUS	1	0.06%	10	0.39%	28	1.15%	47	2.84%	75	5.53%	64	7.82%	37	13.60%	11	34.38%	271	2.48%
HAVING AND WEARING LOWER DENTURE	1	0.06%	8	0.31%	25	1.03%	39	2.36%	64	4.72%	54	6.60%	34	12.50%	11	34.38%	236	2.16%
EDENTULOUS, HAVING AND WEARING LOWER DENTURE	1	100.0%	8	80.00%	25	89.29%	39	82.98%	64	85.33%	54	84.38%	34	91.89%	11	100.0%	236	87.08%
EDENTULOUS BOTH UPPER & LOWER	1	0.06%	10	0.39%	27	1.11%	46	2.78%	69	5.08%	62	7.58%	37	13.60%	10	31.25%	262	2.40%

However, it appears from Table XXII, that the majority of persons become edentulous in the upper arch first, and so for considerable time will still be attending dentists for care of the lower natural teeth.

The rate of edentulism in the lower arch of this population closely approximates the rate of total edentulism. There is very little need for complete dentures in the 16-25 age group. Persons aged 26-35 are eight times more likely to be edentulous in the upper arch than in the lower arch. There appears to be a consistently higher rate for persons with edentulous lower arches who do not have or wear a denture as opposed to those with edentulous upper arches.

The literature suggests that total loss of the lower teeth will cause four times the reduction in morphological face height as total loss of the upper teeth.[15] The lower anterior teeth have been shown in the periodontal section to be the most disease resistant dental sextant. Preservation of the lower anteriors may be an important consideration for patient satisfaction in the prosthetic field.

TABLE XXIII

DISTRIBUTION OF EDENTULOUS ADULTS IN SAMPLE POPULATION BY AGE GROUP AND DENTURE NEEDS

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
UPPER EDENTULOUS	6	100.0%	81	100.0%	186	100.0%	239	100.0%	287	100.0%	227	100.0%	101	100.0%	16	100.0%	1143	100.0%
NO NEEDS	2	33.33%	41	50.62%	75	40.32%	119	49.79%	147	51.22%	121	53.30%	58	57.43%	12	75.00%	575	50.31%
NEW UPPER DENTURE	2	33.33%	21	25.93%	74	39.78%	68	28.45%	83	28.92%	60	26.43%	22	21.78%	3	18.75%	333	29.13%
UPPER REBASE	1	16.67%	1	1.23%	4	2.15%	3	1.26%	6	2.09%	5	2.20%	3	2.97%	1	6.25%	24	2.10%
UPPER RELINE	1	16.67%	15	18.52%	26	13.98%	42	17.57%	44	15.33%	37	16.30%	16	15.84%	0	0.00%	181	15.84%
UPPER REPAIR	0	0.00%	3	3.70%	7	3.76%	7	2.93%	7	2.44%	4	1.76%	2	1.98%	0	0.00%	30	2.62%
LOWER EDENTULOUS	1	100.0%	10	100.0%	28	100.0%	47	100.0%	75	100.0%	64	100.0%	37	100.0%	11	100.0%	273	100.0%
NO NEEDS	1	100.0%	2	20.00%	7	25.00%	12	25.53%	22	29.33%	20	31.25%	12	32.43%	4	36.36%	80	29.30%
NEW LOWER DENTURE	0	0.00%	6	60.00%	12	42.86%	18	38.30%	33	44.00%	31	48.44%	17	45.95%	4	36.36%	121	44.32%
LOWER REBASE	0	0.00%	1	10.00%	5	17.86%	2	4.26%	3	4.00%	0	0.00%	2	5.41%	1	9.09%	14	5.13%
LOWER RELINE	0	0.00%	1	10.00%	4	14.29%	15	31.91%	17	22.67%	12	18.75%	5	13.51%	1	9.09%	55	20.15%
LOWER REPAIR	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	1.56%	1	2.70%	1	9.09%	3	1.10%

Table XXIII shows that denture needs rise steadily with age. Denture needs are consistently higher for those with edentulous lower arches than for those with edentulous upper arches. A new lower denture is needed by 44.32% of those with no lower teeth, but by only 29.13% of those with no upper teeth. Rebases and relines of lower dentures are needed more frequently than for upper dentures. The need for denture repairs however, is more frequent for upper dentures than for lower.

Table XXIV reports the average and maximum ages of dentures in the sample population. The average age of both upper and lower dentures generally rises with age. The oldest upper denture reported in this survey was 55 years old and the oldest lower denture was 53 years old. There is some indication that some people retain dentures for an extraordinary length of time.

TABLE XXIV

MAXIMUM AND AVERAGE AGES OF UPPER AND LOWER DENTURES IN EDENTULOUS ADULTS IN SAMPLE POPULATION BY AGE GROUP

BRITISH COLUMBIA 1986

	16-25	26-35	36-45	46-55	56-65	66-75	76-85	86+
MAXIMUM AGE UPPER DENTURE	3	20	22	31	48	53	45	55
AVERAGE AGE UPPER DENTURE	2.0	5.7	6.7	7.6	8.5	8.8	9.8	15.4
MAXIMUM AGE LOWER DENTURE	1	20	21	22	33	53	45	47
AVERAGE AGE LOWER DENTURE	1.0	5.4	6.0	4.3	6.8	7.7	11.4	15.0

Removeable Partial Dentures

Table XXV shows that people in the 16-25 age group have a very small need for removeable partial dentures but that the rates of use of, and need for this service rise steadily with age. By age 56-65, almost 30% are wearing a removeable partial denture, 15.92% are wearing an upper and 19.97% are wearing a lower, and this includes the 6.48% who are wearing both.

Overall, 14.41% of all persons over 15 years of age wear a removeable partial denture, with an additional 15.10% requiring one. This is almost 30% of all adults. Only about 50% of those who require removeable partial dentures are reported to actually want them.

TABLE XXV

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND FREQUENCY OF THOSE HAVING, REQUIRING AND WANTING REMOVEABLE PARTIAL DENTURES

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLED	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
HAVING AN UPPER RPD	19	1.07%	114	4.42%	152	6.27%	188	11.36%	216	15.92%	171	20.90%	63	23.16%	6	18.75%	929	8.51%
REQUIRING AN UPPER RPD	17	0.96%	119	4.62%	148	6.10%	180	10.88%	212	15.62%	116	14.18%	43	15.81%	5	15.63%	840	7.69%
WANTING AN UPPER RPD	14	0.79%	85	3.30%	86	3.54%	93	5.62%	110	8.11%	67	8.19%	20	7.35%	3	9.38%	478	4.38%
REQUIRING-WANTING	3	0.17%	34	1.32%	62	2.56%	87	5.26%	102	7.52%	49	5.99%	23	8.46%	2	6.25%	362	3.32%
HAVING A LOWER RPD	5	0.28%	39	1.51%	138	5.69%	176	10.63%	271	19.97%	209	25.55%	86	31.62%	6	18.75%	930	8.52%
REQUIRING A LOWER RPD	21	1.18%	145	5.62%	275	11.34%	306	18.49%	295	21.74%	193	23.59%	65	23.90%	5	15.63%	1305	11.95%
WANTING A LOWER RPD	12	0.67%	63	2.44%	139	5.73%	141	8.52%	143	10.54%	76	9.29%	26	9.56%	4	12.50%	604	5.53%
REQUIRING-WANTING	9	0.51%	82	3.18%	136	5.61%	165	9.97%	152	11.20%	117	14.30%	39	14.34%	1	3.13%	701	6.42%
UPPER RPD'S REPAIRS	5	0.28%	20	0.78%	30	1.24%	30	1.81%	33	2.43%	34	4.16%	12	4.41%	3	9.38%	167	1.53%
LOWER RPD'S REPAIRS	2	0.11%	8	0.31%	32	1.32%	34	2.05%	46	3.39%	37	4.52%	16	5.88%	1	3.13%	176	1.61%
HAVING BOTH U&L RPD'S	0	0.00%	10	0.39%	41	1.69%	47	2.84%	88	6.48%	67	8.19%	31	11.40%	2	6.25%	286	2.62%
REQUIRING BOTH U&L RPD'S	9	0.51%	51	1.98%	95	3.92%	110	6.65%	128	9.43%	75	9.17%	24	8.82%	4	12.50%	496	4.54%
WANTING BOTH U&L RPD'S	5	0.28%	28	1.09%	45	1.85%	44	2.66%	53	3.91%	24	2.93%	6	2.21%	2	6.25%	207	1.90%
REQUIRING-WANTING	4	0.22%	23	0.89%	50	2.06%	66	3.99%	75	5.53%	51	6.23%	18	6.62%	2	6.25%	289	2.65%

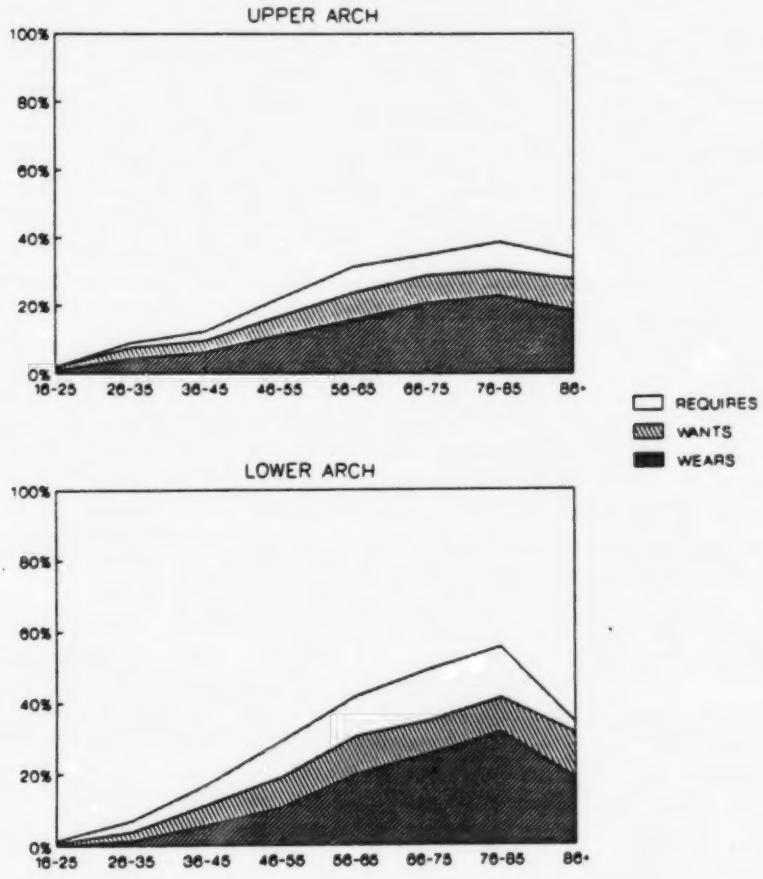
The dental profession has not succeeded in convincing enough people about the advantages of replacing missing teeth at the time of extraction, so that prevention of problems caused by drifting, inclining and extrusion, can occur.

More of the need for upper removeable partials appears to be met than for lower partials. This may be due to the greater esthetic visibility of the upper arch. Removeable partial dentures appear to be a large portion of the prosthetic needs of adult patients.

FIGURE G

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND FREQUENCY OF THOSE HAVING, REQUIRING AND WANTING REMOVEABLE PARTIAL DENTURES

BRITISH COLUMBIA 1986



Fixed Partial Dentures

Table XXVI shows that in contrast to removeable partial dentures, the use of, and need for fixed partial dentures rises until age 46-55 and then falls off. For the 16-25 age group, the need for fixed partial dentures, while still low, is three times as high as for removeable partial dentures. By age 56-65, over 21% have at least one fixed partial, 17.32% have an upper, 9.65% have a lower and this includes the 5.16% who have both. For older age groups the choice of treatment by patients and dentists alike seems to favor removeable partials over fixed partials.

TABLE XXVI

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND FREQUENCY OF THOSE HAVING, REQUIRING AND WANTING FIXED PARTIAL DENTURES

BRITISH COLUMBIA 1986

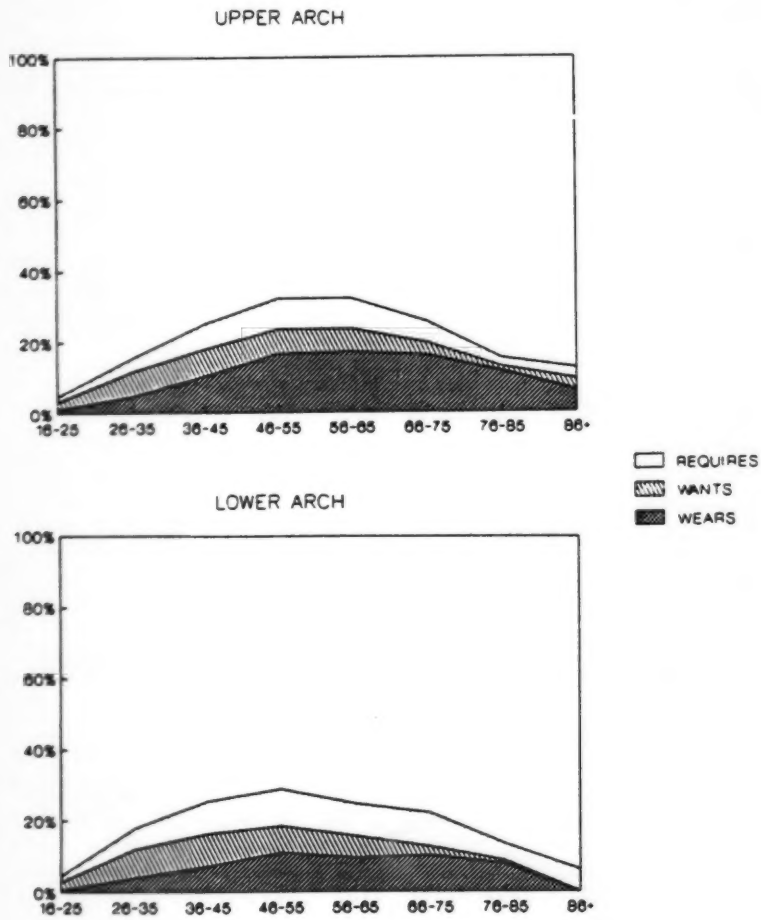
	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLED	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
WEARING UPPER FPD	22	1.24%	123	4.77%	256	10.55%	278	16.80%	235	17.32%	134	16.38%	32	11.76%	2	6.25%	1082	9.91%
REQUIRING AN UPPER FPD	63	3.54%	276	10.71%	354	14.59%	254	15.35%	201	14.81%	76	9.29%	10	3.68%	2	6.25%	1236	11.32%
WANTING AN UPPER FPD	38	2.14%	181	7.02%	183	7.54%	113	6.83%	86	6.34%	27	3.30%	3	1.10%	1	3.13%	632	5.79%
REQUIRING-WANTING	25	1.41%	95	3.69%	171	7.05%	141	8.52%	115	8.47%	49	5.99%	7	2.57%	1	3.13%	604	5.53%
WEARING LOWER FPD	14	0.79%	105	4.07%	180	7.42%	175	10.57%	131	9.65%	84	10.27%	22	8.09%	0	0.00%	711	6.51%
REQUIRING A LOWER FPD	68	3.82%	356	13.81%	441	18.18%	295	17.82%	205	15.11%	97	11.86%	15	5.51%	2	6.25%	1479	13.55%
WANTING A LOWER FPD	39	2.19%	209	8.11%	221	9.11%	122	7.37%	82	6.04%	20	2.44%	2	0.74%	1	3.13%	696	6.38%
REQUIRING-WANTING	29	1.63%	147	5.70%	220	9.07%	173	10.45%	123	9.06%	77	9.41%	13	4.78%	1	3.13%	783	7.17%
UPPER FPD'S REPAIRS	3	0.17%	18	0.70%	35	1.44%	33	1.99%	36	2.65%	20	2.44%	8	2.94%	0	0.00%	153	1.40%
LOWER FPD'S REPAIRS	3	0.17%	8	0.31%	22	0.91%	20	1.21%	10	0.74%	16	1.96%	1	0.37%	0	0.00%	80	0.73%
WEARING BOTH U&L FPD'S	1	0.06%	28	1.09%	71	2.93%	92	5.56%	70	5.16%	44	5.38%	9	3.31%	0	0.00%	315	2.89%
REQUIRING BOTH U&L FPD'S	17	0.96%	122	4.73%	189	7.79%	131	7.92%	96	7.07%	40	4.89%	3	1.10%	2	6.25%	600	5.50%
WANTING BOTH U&L FPD'S	8	0.45%	77	2.99%	93	3.83%	45	2.72%	36	2.65%	11	1.34%	1	0.37%	1	3.13%	272	2.49%
REQUIRING-WANTING	9	0.51%	45	1.75%	96	3.96%	86	5.20%	60	4.42%	29	3.55%	2	0.74%	1	3.13%	328	3.00%

Overall 13.63% of all adults in the sample wear a fixed partial denture, and an additional 19.37% require one. This represents 33% of all adults. Only 9.66% want this service which again is about 50% of those who require it. This reinforces the idea that dentistry is not convincing people to replace teeth at the time of extraction so that future problems can be prevented.

FIGURE H

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP AND FREQUENCY OF THOSE HAVING, REQUIRING AND WANTING FIXED PARTIAL DENTURES

BRITISH COLUMBIA 1986



In looking at fixed partial dentures and removeable partial dentures together, it appears that one or the other is worn by more than 27% of all adults in the sample and is required by an additional 34% of adults. This indicates that a remarkable 61% of all adults have received or need this service. While only about half of the additional need appears to be wanted at this time, there is still a very strong demand for partial denture service. This demand will decline if dentistry can maintain the low extraction rate visible in the 16-25 age group, from rising, as these people get older.

CHAPTER 7. SUPPLEMENTAL FINDINGS

Use of Radiographs

The use of radiographs for any purpose other than caring for the patient is inappropriate. Therefore, most adult dental surveys have been carried out without reference to radiographs. However, in this survey it was possible for films to be available for all patients, because the examining dentist was also the care provider. The committee felt that it was necessary to report the frequency of referral to radiographs so that the data could be more fully described for possible comparisons with other survey data.

Radiographs are very useful in discovering incipient caries, particularly in previously intact interproximal surfaces where they might otherwise not be seen. Surveys carried out with reference to radiographs will likely report higher DMFT rates, than those without such reference.

Table XXVII shows that overall, 59.25% of the survey forms were completed using radiographs to corroborate the findings of the oral examinations. In the 16-25 age group, radiographs were referred to in completing 65.77% of the survey forms, but in only 21.88% of those over 85 years. Generally, the older the age group, the less frequent was the reported use of radiographs.

TABLE XXVII

DISTRIBUTION OF SAMPLE ADULT POPULATION AND FREQUENCY OF USE OF RADIOGRAPHS BY AGE GROUP IN COMPLETING SURVEY

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
USED RADIOGRAPHS	1170	65.77%	1685	65.36%	1516	62.49%	929	56.13%	679	50.04%	393	48.04%	89	32.72%	7	21.88%	6468	59.25%
DID NOT USE RADIOGRAPHS	609	34.23%	893	34.64%	910	37.51%	726	43.87%	678	49.96%	425	51.96%	183	67.28%	25	78.13%	4449	40.75%

Prognosis

After each survey form was completed, the dentist was asked to give an opinion concerning the ability of the examined patient to keep his or her remaining natural teeth for a lifetime.

Table XXVIII shows that dentists are generally optimistic about this population's chances of retaining their remaining natural teeth. Examining dentists felt it probable that 87.18% of the 16-25 age group would retain all of their remaining natural teeth (28.46 teeth) for the rest of their lives. They felt it was possible for an additional 11.19% of this age group to retain their teeth and unlikely for only 1.57%.

This favorable prognosis falls with each succeeding age group. It was felt probable that only 53.87% of the 56-65 age group would retain all of their remaining teeth (19.44 teeth) for the rest of their lives.

This survey indicated that the youngest adults have good dental health, and that the dental profession seems confident that they will retain their natural teeth. Time will tell whether this optimism on the part of dentistry is warranted.

TABLE XXVIII

DISTRIBUTION OF DENTISTS' PROGNOSES AS TO SAMPLE ADULT POPULATION'S ABILITY TO KEEP REMAINING NATURAL TEETH FOR A LIFETIME BY AGE GROUP

BRITISH COLUMBIA 1986

	16-25		26-35		36-45		46-55		56-65		66-75		76-85		86+		ALL AGE GROUPS	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL SAMPLE	1779	100.0%	2578	100.0%	2426	100.0%	1655	100.0%	1357	100.0%	818	100.0%	272	100.0%	32	100.0%	10917	100.0%
PROBABLE	1551	87.18%	2047	79.40%	1760	72.55%	1018	61.51%	731	53.87%	432	52.81%	123	45.22%	12	37.50%	7674	70.29%
POSSIBLE	199	11.19%	459	17.80%	517	21.31%	434	26.22%	410	30.21%	238	29.10%	87	31.99%	8	25.00%	2352	21.54%
UNLIKELY	28	1.57%	62	2.40%	119	4.91%	156	9.43%	142	10.46%	84	10.27%	24	8.82%	3	9.38%	618	5.66%
NOT APPLICABLE	1	0.06%	10	0.39%	30	1.24%	47	2.84%	74	5.45%	64	7.82%	38	13.97%	9	28.13%	273	2.50%

CHAPTER 8. SUMMARY AND CONCLUSIONS

The survey method used in this study relied upon dentists in British Columbia submitting data obtained from adults in their practices, on a specific day. This method created a large sample of adults from every region of the province, covering all age groups in appropriate proportions to census estimates. It included adults who attend dentist offices both regularly and infrequently. The high response rate of dentists from all regions created a representative sample. This method avoided the high cost of a household survey, estimated at $500,000.

Highlights

Females appear to attend dental offices slightly more frequently than males. Young adults (16-25) do not attend dental offices as often as their proportion of the population would indicate as appropriate. Perhaps young adults have just left the protection of the family dental plan or are involved with new ventures in education and employment. In any case, whether from economic concerns or not, a proportion of them are postponing dental care and the preventive services that almost every adult requires in order to retain their teeth. Adults past the usual retirement age seem to use less than their share of dental services as well.

Most of the sample population can be classed as city dwellers, by provincial definition, with rural residents more numerous than those in towns.

Dentists considered 75.28% of the sample to be recall patients, but only 45.74% of the sample gave "recall appointment" as their reason for starting the present series of dental appointments. Other significant reasons given by patients for making dental appointments included the need for restorative care or prosthodontic care, and pain.

Most of the sample had visited a dentist within a year, corresponding closely to the data collected by the Vancouver and District Dental Society.[16] The two youngest age groups, and the oldest, reported the longest intervals between series of dental appointments suggesting again that these age groups are using less than their proportionate share of dental services. Almost 2% of the total sample had not visited a dentist in the last 10 years.

The services that the sample population need the most, as viewed by dentists, were prevention/prophylaxis, restorative care and prosthodontic care. It is assumed that the majority of the prevention/prophylaxis services are aimed at periodontal disease as this condition is so prevalent in adults.

Slightly over 60% of the sample had private dental insurance, which is close to the provincial estimates provided by insurance carriers. Slightly over 30% of the sample had no dental plan. The remainder are covered by the Ministry of Housing and Social Services and the Department of National Health and Welfare.

Dental caries is a threat to the dentition throughout life, not just in childhood. After prevention/prophylaxis, dentists still view the treatment of caries as the most common dental need in patients of all ages. Certainly caries is still a universal disease in adults. However the restorative care provided by dentists appears to be meeting the caries needs, as no age group has an individual average exceeding 1.57 teeth requiring restoration. Overall, endodontics is seen as a greater need than surgery indicating a conservative treatment approach is being used. It is of great interest to note that at least 35% of the teeth present at any age remain "sound" in tooth structure. This very strongly suggests that dental caries is not the main disease causing the loss of all the teeth.

Periodontal disease also appears to be a universal disease in adults, and is probably the major threat to the destruction of the dentition. While dentistry may be satisfactorily meeting the needs posed by dental caries, the data concerning periodontal disease indicates that these problems increase with age. There is a paradox here in that dentists recognize the presence of this disease, and are promoting its prevention, but the progression of the disease is consistent with age. Greater success in dealing with periodontal disease may be eluding the profession because the patient's role in preventing and controlling this condition is so crucial. Adults need to be convinced about the benefits of preventing periodontal disease. The data seems to suggest that deep pockets lead fairly quickly to extractions. The greatest potential for improving adult health may be to prevent periodontal pocket formation.

Oral pathology appears in about 9% of the adult population. The range of conditions exhibited varies from benign and anatomical variations to life threatening conditions. Communicable diseases, like AIDS, have oral signs and symptoms, as do some cancers and leukemias. Dentists obviously have an important role in the early detection and diagnosis of many important pathologies.

The 16-25 age group is the only one reporting significant numbers as having received orthodontic care. There appears to be an almost equal number in this youngest age group where provision of orthodontic care is classified as desirable, and a much smaller number classified as essential. There also appears to be a large pool of young adults who could benefit from orthodontic care. Intervention at a younger age likely would have made treatment easier. Progress in the prevention of orthodontic problems and/or their correction at an appropriate age, remains a challenge for the profession.

The need for prosthodontic care is directly related to the extraction of teeth. In the past, many teeth appear to have been extracted without the patient being convinced that severe problems might ensue, if the missing tooth or teeth were not replaced.

A very high proportion of adults receive or require prosthodontic care. Overall, close to 60% of all adults either have or require some form of partial denture service and an additional 10% require full denture prosthetics. However, only about 50% of those requiring partial denture prosthetics actually want this service, resulting in the possibility of drifting, inclining and extrusion of other teeth for a significant number of adults. The potential exists to greatly reduce this prosthetic need, as the 16-25 age group have lost very few teeth. If success continues in preventing the extraction of teeth for this group as it ages, prosthodontic demands will be greatly reduced.

Significant conclusions which provide a synopsis of the 1986 Adult Dental Health Survey are as follows:

1. The youngest adults (16-25) appear to be different than the other age groups as they have better dental health and have experienced fewer extractions than the other age groups.

2. Young adults, however, are not appearing in dental offices as frequently as their proportion of the population suggests they should, and therefore are not receiving the preventive care that they received in childhood.

3. Older adults do not use dental services frequently enough to maximize their dental health.

4. Dentistry appears to be meeting the restorative needs of the adult population.

5. Periodontal disease appears to be responsible for the major threat to the dentition in adults. There is a gap between the need for periodontal care and the perception of demand for such treatment. Public awareness programs may be required to bring demand for treatment more in line with the need.

6. Many adults have grown up with occlusions which would have been easier to correct at a younger age.

7. Oral pathology is present in almost 9% of adult patients requiring early detection and diagnosis by dentists.

8. In the past, teeth have been extracted without the patient having the missing teeth replaced quickly in order to prevent future problems.

9. There is a great deal of optimism within the dental profession that most adults will keep their natural teeth for a lifetime.

APPENDIX A

PATIENT FORM NO. 14642

ADULT DENTAL HEALTH SURVEY
Aged 16 Years and over

DEMOGRAPHY SECTION

1. What is patient's age at last birthday? _____ years
2. What is the place of residence of the patient? _____
   name of town, city or rural area

Please CIRCLE the appropriate answers:

3. What is the sex of the patient? 1) male 2) female
4. Does the patient have a dental insurance plan? 1) no 2) MSA
   3) CU & C 4) Welfare 5) Native Indians 6) other
5. Is this patient a regular recall patient in your practise? 1) yes 2) no
6. What is the PATIENT'S MAIN reason for this series of visits? 1) recall appt.
   2) prophylaxis 3) pain 4) injury 5) prosthetics 6) other

- -

7. At this time, what treatment do YOU feel the patient needs?
   1) prevention and prophy 2) endodontic 3) prosthodontic 4) restorative
   5) orthodontic 6) periodontic 7) surgical 8) other _____
8. How long is it since this patient completed his/her last series of dental visits with you or some other dentist?
   1) less than a year 2) 1 year 3) 2 years 4) 2-5 years 5) 5-10 years
   6) 10 years+

RESTORATIVE SECTION (Questions 9-12 inclusive)

Please record appropriate condition using the following codes. The code should be entered in the square beneath each numbered tooth.

D: Decayed M: Missing MO: Missing (Orthodontics) MT: Missing (Trauma)

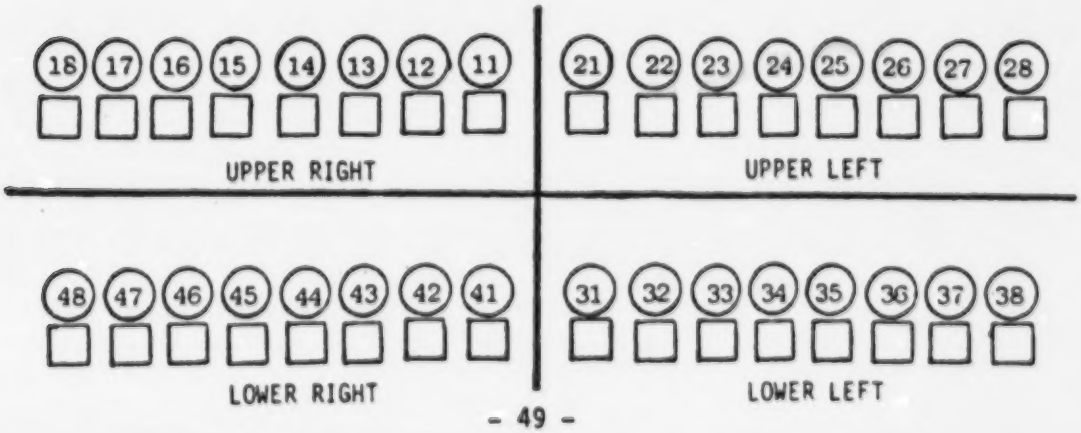
F: Filled S: Sound

Decayed: if decay present, tooth is decayed regardless of previous treatment;

Missing: tooth is absent; MO: tooth is absent due to orthodontics; MT: tooth is absent due to trauma;

Filled: includes fillings, inlays, onlays and all crowns (excludes sealants);

Sound: tooth present; never decayed or restored (includes sealants).



PERIODONTAL STATUS SECTION

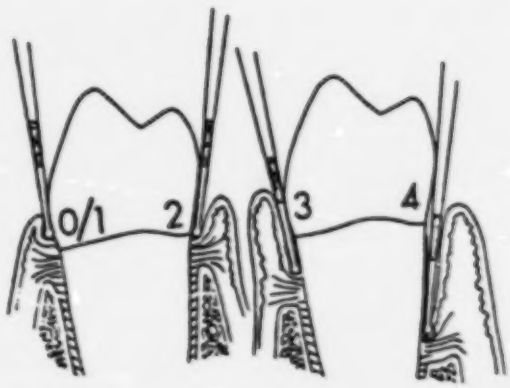
Please review instructions before coding.

Use the Index Teeth as shown:

17, 16	11	26, 27
47, 46	31	36, 37

RECORD THE WORST INDEX TOOTH IN EACH SEXTANT

At least two teeth not marked for extraction must exist in each sextant; otherwise, mark ⊘ in sextant box.



Code 0: absence of any disease in sextant

Code 1: pocket depth is 3 mm or less, no calculus but bleeds if probed

Code 2: if supra or subgingival calculus is present

Code 3: pocket depth is 4-5 mm

Code 4: pocket depth is 6 mm or more

	R. Post	Anterior	L. Post.
13. Please complete the coding for upper sextants:			
14. Please complete the coding for lower sextants:			

15. Does the patient have any other oral, soft tissue pathology present?
    1) yes 2) no

16. If the answer to No. 15 is yes, please name: _____

ORTHODONTIC SECTION

17. Using Angle's method, how would you classify this patient's occlusion?
    1) Class I 2) Class II 3) Class III
    4) not applicable (prosthetic appliance in place)

18. Which of the following occlusal conditions are present in this patient?
    1) acceptable occlusion 2) 100% overbite
    3) more than 5 mm overjet 4) anterior crossbite
    5) posterior crossbite 6) anterior open bite
    7) poor alignment

19. In which of the following categories would you place this patient's need for orthodontic treatment?
    1) no need 2) desirable 3) essential
    4) orthodontic treatment completed or in progress

PROSTHODONTIC SECTION

Section A - Upper Dentures

20. Does this patient have any natural upper teeth?
    1) yes 2) no (If yes, go to Section B; if no, go to No. 21)
21. If answer to No. 20 is no, does the patient have an upper denture?
    1) yes 2) no
22. Does patient usually wear upper denture? 1) yes 2) no
23. How old is this present upper denture? _____ years
24. What denture service do you feel is necessary?
    1) none 2) new denture 3) rebase 4) reline 5) repair

Section B - Lower Dentures

25. Does this patient have any natural lower teeth?
    1) yes 2) no (If yes, go to Section C; if no, go to No. 26)
26. If answer to No. 25 is no, does the patient have a lower denture?
    1) yes 2) no
27. Does the patient usually wear lower denture? 1) yes 2) no
28. How old is this present lower denture? _____ years
29. What denture service do you feel is necessary?
    1) none 2) new denture 3) rebase 4) reline 5) repair

Section C - Removable Partial Dentures (R.P.D.)

30. Does the patient have an upper R.P.D.? 1) yes 2) no
31. Does the patient have a lower R.P.D.? 1) yes 2) no
32. Does the patient usually wear upper R.P.D.? 1) yes 2) no
33. Does the patient usually wear lower R.P.D.? 1) yes 2) no
34. Does the patient require an upper R.P.D.? 1) yes 2) no
35. Does the patient require a lower R.P.D.? 1) yes 2) no
36. Does the patient want an upper R.P.D.? 1) yes 2) no
37. Does the patient want a lower R.P.D.? 1) yes 2) no
38. Does the patient need repair to an upper R.P.D.? 1) yes 2) no
39. Does the patient need repair to a lower R.P.D.? 1) yes 2) no

Section D - Fixed Partial Dentures (F.P.D.)

40. Does the patient have an upper F.P.D.? 1) yes 2) no

41. Does the patient have a lower F.P.D.? 1) yes 2) no

42. Does the patient require an upper F.P.D.? 1) yes 2) no

43. Does the patient require a lower F.P.D.? 1) yes 2) no

44. Does the patient want an upper F.P.D.? 1) yes 2) no

45. Does the patient want a lower F.P.D.? 1) yes 2) no

46. Does the patient need repair to an upper F.P.D.? 1) yes 2) no

47. Does the patient need repair to a lower F.P.D.? 1) yes 2) no

SUPPLEMENTARY

48. My prognosis of this patient's ability to keep his/her remaining natural teeth for a lifetime is:

    1) probable 2) possible 3) unlikely 4) not applicable

49. In completing this survey form, did you refer at any time to X-ray films?

    1) yes 2) no

APPENDIX B

British Columbia Adult Dental Survey
Recording Instructions

The Adult Dental Survey is being carried out to determine the oral health status, treatment status and treatment needs of our ADULT population (16 YEARS OF AGE AND OVER).

We need to have EVERY PATIENT who appears in your dental office on a specified date included in the survey. Emergency and casual attendees are as important as your regular patients. The accuracy with which you examine patients and complete the survey forms will affect the reliability of the data.

We would be grateful if you would read and follow carefully the recording instructions for the five sections. Auxiliary staff can complete much of the information from your records (Questions 1-6). Data from the ACTUAL EXAM (Questions 7-49) must be completed by the DENTIST.

Demographic Section

This section is designed to find out a few demographic details concerning your patients such as age, sex, place of residence, etc. Please proceed as follows:

1. Age - enter age of patient as of last birthday.

2. Place of residence - enter name of place, village, town or city where patient lives. If outside a community, mark rural area by name.

From now on, all data can be recorded by placing a CIRCLE around the appropriate answer.

3. Sex - male or female.

4. Dental Insurance - indicate whether or not the patient is covered by a 3rd party payment dental plan and, if so, the carrier. E.g. 1) no 2) MSA 3) CU & C 4) Welfare (MHR) 5) Native Indians 6) other.

5. Recall patient - indicate whether or not this patient is a regular recall patient in your practice.

6. Reason for visit - indicate the main reason why this patient came to your office to start this specific series of visits. Please circle only ONE answer.

7. Treatment needed - looking at your patient today, indicate what treatment is required at this time. Circle more than one answer if applicable.

8. Interval between visits - indicate how long it has been since this patient had his/her last series of appointments with you or some other dentist. (Important to be as accurate as possible)

Restorative Section (Questions 9-12)

For this survey, the international system of tooth numbering is being used (see chart on survey form).

In this section, we are trying to determine the dental caries experience of the individual as well as treatment needs. Each tooth should be designated (in the box below the tooth number) as decayed, missing, filled or sound, using the following code:

Decayed: D Missing: M, MO or MT Filled: F Sound: S

Decayed - Caries is considered present in a tooth when any lesion has a detectably softened floor, undermined enamel or softened wall. On an interproximal surface, the explorer point must enter a lesion with certainty. Where any doubt exists, caries should not be diagnosed as present.

When a tooth has one or more filled surfaces and another surface that is carious, or when there is recurrent caries around a filling, or when the tooth contains a temporary filling requiring further treatment, the tooth should be scored as decayed.

Missing - Mark all teeth which are obviously missing from either arch. If a tooth is broken down beyond repair or only roots remain requiring extraction, mark "M" as missing. If it is obvious that teeth are missing because of orthodontic treatment, mark as "MO". If it is obvious that teeth are missing because of trauma or accident, mark as "MT".

Filled - Teeth should be considered as filled whenever a filling of any permanent material is present and there is no recurrent caries. Teeth with crowns placed should be regarded as filled. Teeth with sealants only are to be regarded as "S" (sound) rather than "F" (filled).

Sound - A tooth is considered sound if it shows no evidence of treated or untreated caries (includes sealants).

Examples:

Periodontal Status Section (Questions 13-14)

In this survey, we will be using the World Health Organization Community Periodontal Index of Treatment Needs (CPITN).

In this index, the periodontal treatment needs are recorded for sextants. Third molars are not included except where they are functioning in place of second molars. The sextants contain the following teeth:

	Right Posterior	Anterior	Left Posterior
Upper	17-14	13-23	24-27
Lower	47-44	43-33	34-37

INTERNATIONAL NUMBERS OF TEETH IN EACH SEXTANT

A sextant must have two or more teeth present before we record treatment need and these teeth must be healthy enough that they are not indicated for extraction. If only one functioning tooth remains in a sextant, it is included in the adjoining sextant. Missing sextants are indicated with a diagonal line drawn through the appropriate box.

It is not necessary to probe each tooth in each sextant. It is only necessary to probe certain index teeth as follows:

INTERNATIONAL NUMBER OF INDEX TEETH USED IN EACH SEXTANT:			
	17,16	11	26,27
	47,46	31	36,37

In other words, in the upper right sextant, probe only the first and second molars and record only the worst finding from these tooth surfaces for that sextant. If no index teeth are present in that sextant, all the remaining teeth in the sextant are examined and once again only the worst finding is recorded.

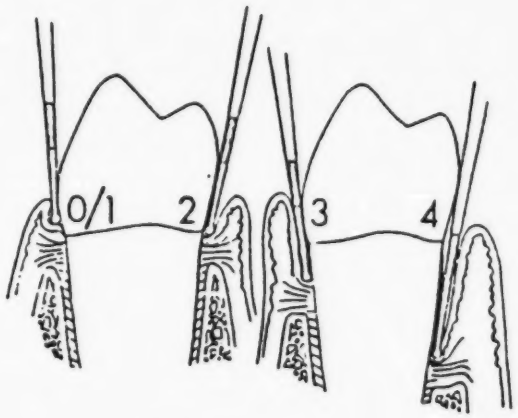
Record your findings as follows:

Score 0 - No signs of disease.
Score 1 - Gingival bleeding after gentle probing (no calculus, no pocket over 3 mm).
Score 2 - Supra or sub-gingival calculus is present.
Score 3 - Pathologic pockets 4 to 5 mm deep.
Score 4 - Pathologic pockets 6 mm or deeper.

CODE WORST INDEXED TOOTH IN EACH SEXTANT.

AT LEAST TWO TEETH NOT MARKED FOR EXTRACTION MUST EXIST IN EACH SEXTANT: OTHERWISE, MARK IN SEXTANT BOX.

For example, whenever a 6 mm or deeper pocket is found in a sextant index tooth, a code of 4 is assigned to that sextant.

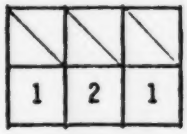


Case Example 1

4	2	3
2	2	

There is at least one deep pocket in the upper right sextant and a moderately deep pocket in the upper left sextant. Three sextants require scaling and one sextant is edentulous.

Case Example 2



This patient has an edentulous maxillary arch. The lower anterior sextant requires scaling and the posterior sextants exhibit bleeding or probing requiring improved oral hygiene.

15. Additional Pathology - If other soft tissue pathology is present, circle "yes".

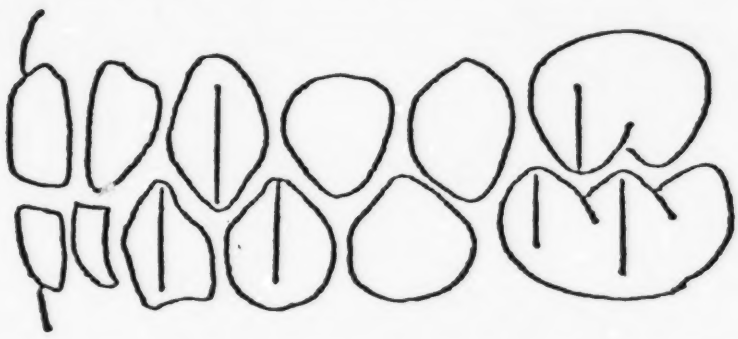
16. If yes, please name. Common examples are as follows:

Leukoplakia	Inflammatory ulcer	Epulis fissuratum
Palatal/mandibular tori	Papilloma	Herpes labialis
Fordyce's granules	Tobacco/snuff pouch	Enlarged lingual tonsil
Inflammation/irritation	Fissured tongue	Scar tissue
Irritation fibroma	Varicosities	Hematoma
Hemangioma	Geographic tongue	Mucocele
Chronic cheek bites	Epidermoid cyst	Nicotine palatinus
Smooth, red tongue	Angular cheilitis	Oral melanotic macule
Lichen planus	Black hairy tongue	Papillary hyperplasia
Buccal exostoses	Amalgam tatoo	Median rhomboid glossitis

Orthodontic Section

In this section, we are trying to determine Angle's classification of occlusion, some details concerning the occlusion, and an estimate of the need for treatment, whether treatment is underway or has been completed.

Angle's Classification - Please circle whether the patient is Class I, Class II or Class III based upon the position of the upper and lower first permanent molars. If these teeth are missing, use the canines.



To be either Cl. II or Cl. III, the relationship on at least one side should be out by one full cusp (vertical cusp lines drawn on the diagram should have passed each other).

If major prosthetic appliances are worn, circle No. 4 (not applicable).

18. Occlusion Assessment:

excessive overbite - when the overbite is 100% or biting into the gingivae.
excessive overjet - when overjet is 5 mm or greater.
poor alignment - crowding, drifting, rotations, out of arch, etc.

19. Treatment: using your best judgment, choose one of the following categories:

no need:	no need for any treatment; may be some occlusal derangement but not requiring treatment.
desirable:	occlusion or esthetics could be improved.
essential:	needed for function or esthetics.
treatment provided:	treatment is underway or has been completed at some time in the past

Prosthodontic Section (Questions 20-47)

In this section, we are trying to determine past prosthodontic treatment and its present condition along with needed prosthodontic treatment. The questions are pretty well self-explanatory. In Section C and D, we ask for your assessment of whether or not the patient requires a fixed or removable partial denture, followed by the patient's wishes concerning such an assessment. This information is sought to try to estimate the balance between need versus demand.

Supplementary Section

While this section may be self-explanatory, it is essential that every question is answered so that accuracy is insured. Give your best opinion as to the liklihood of this person keeping teeth for a lifetime.

Thank you for reading these instructions. We hope they are not too difficult to follow and look forward to receiving your completed survey forms. This survey should put British Columbia in the forefront concerning oral health status of the adult population.

Important Reminders:

1. Practise on a few patients a day or so before Survey Day. (This first patient may take you about 15 minutes, but the following ones will be less and less.)

2. Two of the most important questions to be completed are the patient's age (Q.1) and the length of time since the last series of dental appointments (Q.8).

3. Re-check your forms to insure every question has been answered. Omitting one question invalidates all your work on the form.

APPENDIX C

DISTRIBUTION OF SAMPLE ADULT POPULATION BY AGE GROUP IN EACH DENTAL SURVEY REGION

BRITISH COLUMBIA 1986

	16-25						26-35					
	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL	
REGION	#	%	#	%	#	%	#	%	#	%	#	%
BOUNDARY	110	9.75%	122	10.82%	232	20.57%	100	8.87%	179	15.87%	279	24.73%
FRASER VALLEY	123	8.32%	141	9.53%	264	17.85%	162	10.95%	237	16.02%	399	26.98%
OKANAGAN	89	6.60%	130	9.64%	219	16.25%	138	10.24%	180	13.35%	318	23.59%
KOOTENAY	23	4.89%	45	9.57%	68	14.47%	45	9.57%	63	13.40%	108	22.98%
VANCOUVER ISLAND	61	6.39%	100	10.47%	161	16.86%	77	8.06%	136	14.24%	213	22.30%
NORTHERN	61	8.45%	86	11.91%	147	20.36%	94	13.02%	125	17.31%	219	30.33%
SKEENA	32	11.19%	36	12.59%	68	23.78%	41	14.34%	51	17.83%	92	32.17%
CRD/VICTORIA	83	6.58%	98	7.77%	181	14.34%	85	6.74%	131	10.38%	216	17.12%
VANCOUVER	92	5.66%	108	6.64%	200	12.30%	193	11.87%	212	13.04%	405	24.91%
RICHMOND	19	4.04%	40	8.51%	59	12.55%	53	11.28%	58	12.34%	111	23.62%
BURNABY	32	6.40%	51	10.20%	83	16.60%	47	9.40%	61	12.20%	108	21.60%
NORTH SHORE	55	8.20%	42	6.26%	97	14.46%	53	7.90%	57	8.49%	110	16.39%
TOTAL	780	7.14%	999	9.15%	1779	16.30%	1088	9.97%	1490	13.65%	2578	23.61%

	36-45						46-55					
	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL	
REGION	#	%	#	%	#	%	#	%	#	%	#	%
BOUNDARY	126	11.17%	148	13.12%	274	24.29%	74	6.56%	72	6.38%	146	12.94%
FRASER VALLEY	146	9.87%	190	12.85%	336	22.72%	99	6.69%	109	7.37%	208	14.06%
OKANAGAN	153	11.35%	157	11.65%	310	23.00%	111	8.23%	100	7.42%	211	15.65%
KOOTENAY	43	9.15%	46	9.79%	89	18.94%	44	9.36%	43	9.15%	87	18.51%
VANCOUVER ISLAND	102	10.68%	125	13.09%	227	23.77%	71	7.43%	75	7.85%	146	15.29%
NORTHERN	68	9.42%	85	11.77%	153	21.19%	66	9.14%	46	6.37%	112	15.51%
SKEENA	32	11.19%	35	12.24%	67	23.43%	12	4.20%	16	5.59%	28	9.79%
CRD/VICTORIA	124	9.83%	124	9.83%	248	19.65%	87	6.89%	101	8.00%	188	14.90%
VANCOUVER	137	8.43%	188	11.56%	325	19.99%	134	8.24%	121	7.44%	255	15.68%
RICHMOND	61	12.98%	81	17.23%	142	30.21%	37	7.87%	40	8.51%	77	16.38%
BURNABY	39	7.80%	67	13.40%	106	21.20%	39	7.80%	44	8.80%	83	16.60%
NORTH SHORE	71	10.58%	78	11.62%	149	22.21%	52	7.75%	62	9.24%	114	16.99%
TOTAL	1102	10.09%	1324	12.13%	2426	22.22%	826	7.57%	829	7.59%	1655	15.16%

	56-65						66-75					
	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL	
REGION	#	%	#	%	#	%	#	%	#	%	#	%
BOUNDARY	52	4.61%	51	4.52%	103	9.13%	29	2.57%	39	3.46%	68	6.03%
FRASER VALLEY	71	4.80%	85	5.75%	156	10.55%	44	2.97%	41	2.77%	85	5.75%
OKANAGAN	88	6.53%	67	4.97%	155	11.50%	43	3.19%	59	4.38%	102	7.57%
KOOTENAY	39	8.30%	32	6.81%	71	15.11%	10	2.13%	21	4.47%	31	6.60%
VANCOUVER ISLAND	63	6.60%	57	5.97%	120	12.57%	35	3.66%	41	4.29%	76	7.96%
NORTHERN	35	4.85%	25	3.46%	60	8.31%	12	1.66%	14	1.94%	26	3.60%
SKEENA	9	3.15%	15	5.24%	24	8.39%	4	1.40%	2	0.70%	6	2.10%
CRD/VICTORIA	95	7.53%	110	8.72%	205	16.24%	81	6.42%	78	6.18%	159	12.60%
VANCOUVER	95	5.84%	134	8.24%	229	14.08%	60	3.69%	76	4.67%	136	8.36%
RICHMOND	22	4.68%	23	4.89%	45	9.57%	14	2.98%	15	3.19%	29	6.17%
BURNABY	34	6.80%	36	7.20%	70	14.00%	19	3.80%	16	3.20%	35	7.00%
NORTH SHORE	57	8.49%	62	9.24%	119	17.73%	37	5.51%	28	4.17%	65	9.69%
TOTAL	660	6.05%	697	6.38%	1357	12.43%	388	3.55%	430	3.94%	818	7.49%

	76-85						86+							
	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL		REGIONAL TOTALS	
REGION	#	%	#	%	#	%	#	%	#	%	#	%	#	%
BOUNDARY	12	1.06%	12	1.06%	24	2.13%	2	0.18%	0	0.00%	2	0.18%	1128	100.00%
FRASER VALLEY	14	0.95%	15	1.01%	29	1.96%	0	0.00%	2	0.14%	2	0.14%	1479	100.00%
OKANAGAN	16	1.19%	15	1.11%	31	2.30%	1	0.07%	1	0.07%	2	0.15%	1348	100.00%
KOOTENAY	6	1.28%	7	1.49%	13	2.77%	2	0.43%	1	0.21%	3	0.64%	470	100.00%
VANCOUVER ISLAND	7	0.73%	4	0.42%	11	1.15%	1	0.10%	0	0.00%	1	0.10%	955	100.00%
NORTHERN	0	0.00%	5	0.69%	5	0.69%	0	0.00%	0	0.00%	0	0.00%	722	100.00%
SKEENA	0	0.00%	1	0.35%	1	0.35%	0	0.00%	0	0.00%	0	0.00%	286	100.00%
CRD/VICTORIA	22	1.74%	33	2.61%	55	4.36%	6	0.48%	4	0.32%	10	0.79%	1262	100.00%
VANCOUVER	20	1.23%	46	2.83%	66	4.06%	2	0.12%	8	0.49%	10	0.62%	1626	100.00%
RICHMOND	2	0.43%	3	0.64%	5	1.06%	0	0.00%	2	0.43%	2	0.43%	470	100.00%
BURNABY	8	1.60%	7	1.40%	15	3.00%	0	0.00%	0	0.00%	0	0.00%	500	100.00%
NORTH SHORE	11	1.64%	6	0.89%	17	2.53%	0	0.00%	0	0.00%	0	0.00%	671	100.00%
TOTAL	118	1.08%	154	1.41%	272	2.49%	14	0.13%	18	0.16%	32	0.29%	10917	100.00%

APPENDIX D

ADULT CARIES AND TREATMENT EXPERIENCE

BRITISH COLUMBIA 1986

	16-25	26-35	36-45	46-55	56-65	66-75	76-85	86+	ALL AGE GROUPS
TOTAL SAMPLE	1779	2578	2426	1655	1357	818	272	32	10917
AVERAGE FILLED	8.23	12.69	13.87	12.78	11.48	10.41	8.44	4.78	11.79
AVERAGE DECAYED	1.57	1.39	1.02	0.83	0.67	0.70	0.69	1.06	1.09
AVERAGE MISSING	0.58	2.20	4.02	6.60	9.16	11.22	13.89	18.56	4.89
AVERAGE DMFT	10.38	16.28	18.91	20.21	21.30	22.33	23.03	24.41	17.77
%F/DMFT	79.30%	77.95%	73.34%	63.23%	53.89%	46.62%	36.67%	19.59%	66.35%
%D/DMFT	15.16%	8.52%	5.38%	4.11%	3.13%	3.13%	3.02%	4.35%	6.14%
%M/DMFT	5.54%	13.53%	21.27%	32.66%	42.99%	50.25%	60.31%	76.06%	27.51%
MINIMUM FILLED	0	0	0	0	0	0	0	0	0
MAXIMUM FILLED	28	28	31	28	28	28	24	20	31
TOTAL FILLED	14645	32706	33655	21148	15578	8515	2297	153	128697
MINIMUM DECAYED	0	0	0	0	0	0	0	0	0
MAXIMUM DECAYED	23	24	23	23	13	18	23	11	24
TOTAL DECAYED	2800	3573	2470	1374	904	571	189	34	11915
MINIMUM MISSING	0	0	0	0	0	0	0	4	0
MAXIMUM MISSING	28	28	28	28	28	28	28	28	28
TOTAL MISSING	1023	5678	9761	10925	12427	9179	3778	594	53365
MINIMUM DMFT	0	0	0	0	0	1	2	16	0
MAXIMUM DMFT	32	32	32	30	31	32	30	28	32
TOTAL DMFT	18468	41957	45886	33447	28909	18265	6264	781	193977
MINIMUM SOUND	0	0	0	0	0	0	0	0	0
MAXIMUM SOUND	32	32	30	32	32	28	30	12	32
TOTAL SOUND	33183	32728	24156	14201	9895	5018	1477	127	120785
AVERAGE SOUND	18.65	12.70	9.96	8.58	7.29	6.13	5.43	3.97	11.06
AVERAGE # TEETH PRESENT	28.46	26.77	24.85	22.19	19.44	17.24	14.57	9.81	23.94
STANDARD DEVIATIONS FOR:									
AVERAGE SOUND	6.60	6.30	5.70	5.30	5.20	4.80	5.40	4.20	
AVERAGE FILLED	5.50	5.80	6.20	6.60	6.70	6.80	6.70	5.50	
AVERAGE DECAYED	3.20	3.40	2.70	2.10	1.50	1.70	1.90	2.40	
AVERAGE MISSING	1.80	4.00	5.90	7.20	7.90	8.40	8.60	8.10	
AVERAGE DMFT	6.50	6.10	5.50	5.10	4.90	4.70	5.20	3.80	

APPENDIX E

HEALTH STATUS OF PERIODONTIUM BY AGE GROUP AND WORST CONDITION

BRITISH COLUMBIA 1986

16-25 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	1779	100.0%	1779	100.0%	1779	100.0%	1779	100.0%	1779	100.0%	1779	100.0%
HEALTHY/REVERSIBLE	1601	90.0%	1721	96.7%	1592	89.5%	1562	87.8%	1735	97.5%	1580	88.8%
MODERATE POCKETS	151	8.5%	42	2.4%	154	8.7%	181	10.2%	34	1.9%	169	9.5%
DEEP POCKETS	16	0.9%	4	0.2%	23	1.3%	28	1.6%	7	0.4%	22	1.2%
EXTRACTED	11	0.6%	12	0.7%	10	0.6%	8	0.4%	3	0.2%	8	0.4%

26-35 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	2578	100.0%	2578	100.0%	2578	100.0%	2578	100.0%	2578	100.0%	2578	100.0%
HEALTHY/REVERSIBLE	1828	70.9%	2305	89.4%	1854	71.9%	1870	72.5%	2418	93.8%	1893	73.4%
MODERATE POCKETS	549	21.3%	130	5.0%	490	19.0%	539	20.9%	120	4.7%	508	19.7%
DEEP POCKETS	86	3.3%	23	0.9%	112	4.3%	100	3.9%	20	0.8%	98	3.8%
EXTRACTED	115	4.5%	120	4.7%	122	4.7%	69	2.7%	20	0.8%	79	3.1%

36-45 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	2426	100.0%	2426	100.0%	2426	100.0%	2426	100.0%	2426	100.0%	2426	100.0%
HEALTHY/REVERSIBLE	1429	58.9%	1968	81.1%	1429	58.9%	1518	62.6%	2155	88.8%	1524	62.8%
MODERATE POCKETS	553	22.8%	150	6.2%	551	22.7%	551	22.7%	157	6.5%	533	22.0%
DEEP POCKETS	176	7.3%	65	2.7%	191	7.9%	162	6.7%	61	2.5%	166	6.8%
EXTRACTED	268	11.0%	243	10.0%	255	10.5%	195	8.0%	53	2.2%	203	8.4%

46-55 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	1655	100.0%	1655	100.0%	1655	100.0%	1655	100.0%	1655	100.0%	1655	100.0%
HEALTHY/REVERSIBLE	756	45.7%	1204	72.7%	784	47.4%	867	52.4%	1396	84.4%	892	53.9%
MODERATE POCKETS	373	22.5%	116	7.0%	341	20.6%	350	21.1%	138	8.3%	312	18.9%
DEEP POCKETS	160	9.7%	44	2.7%	175	10.6%	154	9.3%	51	3.1%	156	9.4%
EXTRACTED	366	22.1%	291	17.6%	355	21.5%	284	17.2%	70	4.2%	295	17.8%

APPENDIX E

HEALTH STATUS OF PERIODONTIUM BY AGE GROUP AND WORST CONDITION

BRITISH COLUMBIA 1986

56-65 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	1357	100.0%	1357	100.0%	1357	100.0%	1357	100.0%	1357	100.0%	1357	100.0%
HEALTHY/REVERSIBLE	530	39.1%	856	63.1%	532	39.2%	606	44.7%	1068	78.7%	639	47.1%
MODERATE POCKETS	279	20.6%	131	9.7%	262	19.3%	289	21.3%	133	9.8%	267	19.7%
DEEP POCKETS	120	8.8%	43	3.2%	122	9.0%	86	6.3%	40	2.9%	94	6.9%
EXTRACTED	428	31.5%	327	24.1%	441	32.5%	376	27.7%	116	8.5%	357	26.3%

66-75 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	818	100.0%	818	100.0%	818	100.0%	818	100.0%	818	100.0%	818	100.0%
HEALTHY/REVERSIBLE	275	33.6%	463	56.6%	274	33.5%	325	39.7%	613	74.9%	335	41.0%
MODERATE POCKETS	140	17.1%	65	7.9%	135	16.5%	152	18.6%	72	8.8%	132	16.1%
DEEP POCKETS	53	6.5%	18	2.2%	59	7.2%	52	6.4%	25	3.1%	54	6.6%
EXTRACTED	350	42.8%	272	33.3%	350	42.8%	289	35.3%	108	13.2%	297	36.3%

76-85 YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	272	100.0%	272	100.0%	272	100.0%	272	100.0%	272	100.0%	272	100.0%
HEALTHY/REVERSIBLE	77	28.3%	119	43.8%	67	24.6%	91	33.5%	180	66.2%	90	33.1%
MODERATE POCKETS	38	14.0%	32	11.8%	49	18.0%	44	16.2%	34	12.5%	41	15.1%
DEEP POCKETS	13	4.8%	6	2.2%	12	4.4%	14	5.1%	4	1.5%	16	5.9%
EXTRACTED	144	52.9%	115	42.3%	144	52.9%	123	45.2%	54	19.9%	125	46.0%

86+ YEAR OLDS

	UPPER SEXTANT						LOWER SEXTANT					
	RIGHT		ANTERIOR		LEFT		RIGHT		ANTERIOR		LEFT	
TOTAL SAMPLE	32	100.0%	32	100.0%	32	100.0%	32	100.0%	32	100.0%	32	100.0%
HEALTHY/REVERSIBLE	2	6.3%	14	43.8%	2	6.3%	6	18.8%	18	56.3%	9	28.1%
MODERATE POCKETS	3	9.4%	1	3.1%	5	15.6%	6	18.8%	2	6.3%	6	18.8%
DEEP POCKETS	4	12.5%	0	0.0%	3	9.4%	1	3.1%	1	3.1%	1	3.1%
EXTRACTED	23	71.9%	17	53.1%	22	68.8%	19	59.4%	11	34.4%	16	50.0%

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